CITY
ARITHMETICS

BOYLAN-SMITH

FOURTH YEAR - SECOND HALF

NEW YORK
CHARLES E. MERRILL CO.

c
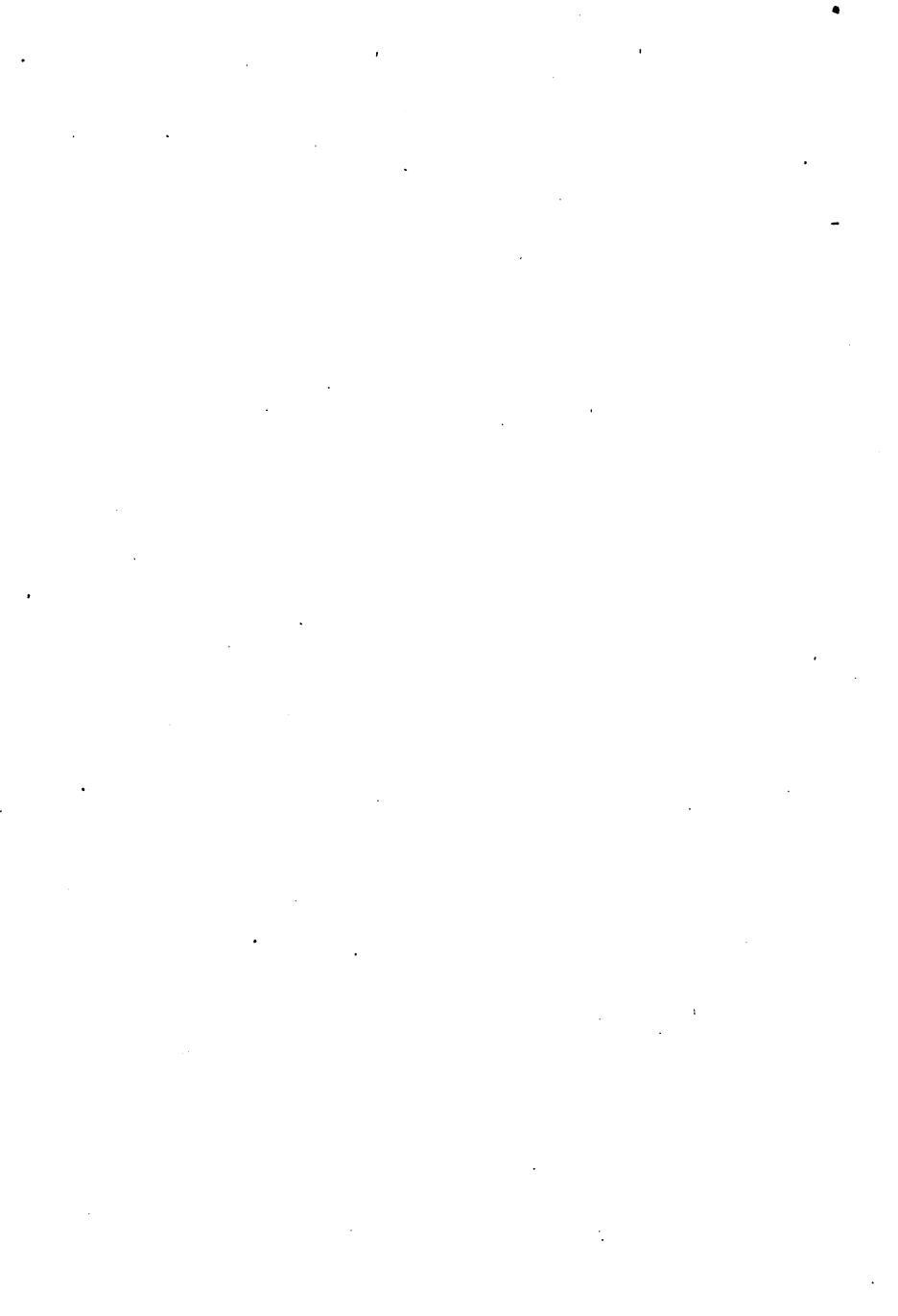
CITY ARITHMETICS

FOURTH YEAR: SECOND HALF

BY

. WILLIAM A. BOYLAN

DISTRICT SUPERINTENDENT OF PUBLIC SCHOOLS
CITY OF NEW YORK

AND

FLOYD R. SMITH

PRINCIPAL OF PUBLIC SCHOOL 167, BROOKLYN

PREFACE

ONE noticeable weakness in elementary education of to-day is the pupil's inability to use a textbook correctly. The CITY ARITHMETIC is an effort to remove this weakness. The appeal is first and foremost to the pupil. The language used is within his comprehension; the explanations are such as he can easily grasp. The work advances step by step. The drill is ample and sufficiently varied, and the problems are within the experience of the average child. These are books which the pupils can use at home as well as in school.

Business men complain that boys and girls whom they employ cannot perform correctly the four fundamental operations. Teachers in the upper grades state that the pupils come to them so weak in addition, subtraction, multiplication, and division of integers that the work in the last three years is seriously handicapped. The authors feel that this is in part due to lack of persistent drill. To offset this, a large number of examples and problems in these operations has been furnished for daily practice.

Overemphasis on the explanation of processes and excessive variety of appeal to the interest of pupils are other causes of weakness in arithmetic. The authors have striven to avoid refinements of explanation, to eliminate processes with little practical application, and to provide an intelligent but not excessive variety of drill work.

Every teacher knows how heavy a burden is the organization of material. These books lift the burden. A moderate spiral is used. In the third and fourth years, the work has been arranged by weeks and with the greatest care. In the fifth and sixth years, the work has been arranged by months; in the seventh and eighth years, the arrangement is topical. Easy examples have been selected for the beginning of each term and the matter is presented in a way that avoids the usual stumblings and discouragements.

Type problems for each grade have been given to illustrate how particular methods are to be carried out and to show with how much detail each subject is to be presented.

Ample material for oral drill has been furnished, and a great number of examples and problems has been introduced so that teachers may lay stress on any phase of the work that requires emphasis. How many of these examples and problems are to be worked by the class, the teacher herself may decide, according to the needs of the pupils.

PLAN OF WORK

THE work of the second half of the fourth year has been arranged by weeks. In this term, special emphasis has been laid on the addition and subtraction of fractions. Beginning with the simplest oral exercises, the work progresses gradually, and each new step is a natural sequence of the one which precedes it. Sufficient objective work is given to clarify the subject.

For drill in the four fundamental operations, a sufficient number of examples and problems have been introduced to furnish an exercise in addition, subtraction, multiplication, and division for every day in the term. Every written exercise is preceded by oral work, and other oral exercises have been introduced for the purpose of drill. These exercises are varied enough to hold the interest of the pupils; greater variety only retards progress in the accurate and rapid use of numbers.

A feature of every book of the CITY ARITHMETICS is the large number of oral and written problems. In this volume, at least ten oral and ten written problems are given each week. Measurements are taken up in the eighth week, and many simple problems are presented in connection with them. Besides these, several groups of related problems have been introduced.

Supplementary examples have been placed at the end of the book. They will be of assistance to the teacher who finds that her class is capable of doing more work than that furnished for the sixteen weeks, or who wishes to reënforce any topic by additional exercises.

The order of topics is practically the same in every week. Teachers who prefer to depart from the plan of the book will have no difficulty in finding the material necessary for any arrangement of work which proves most effective with the class.
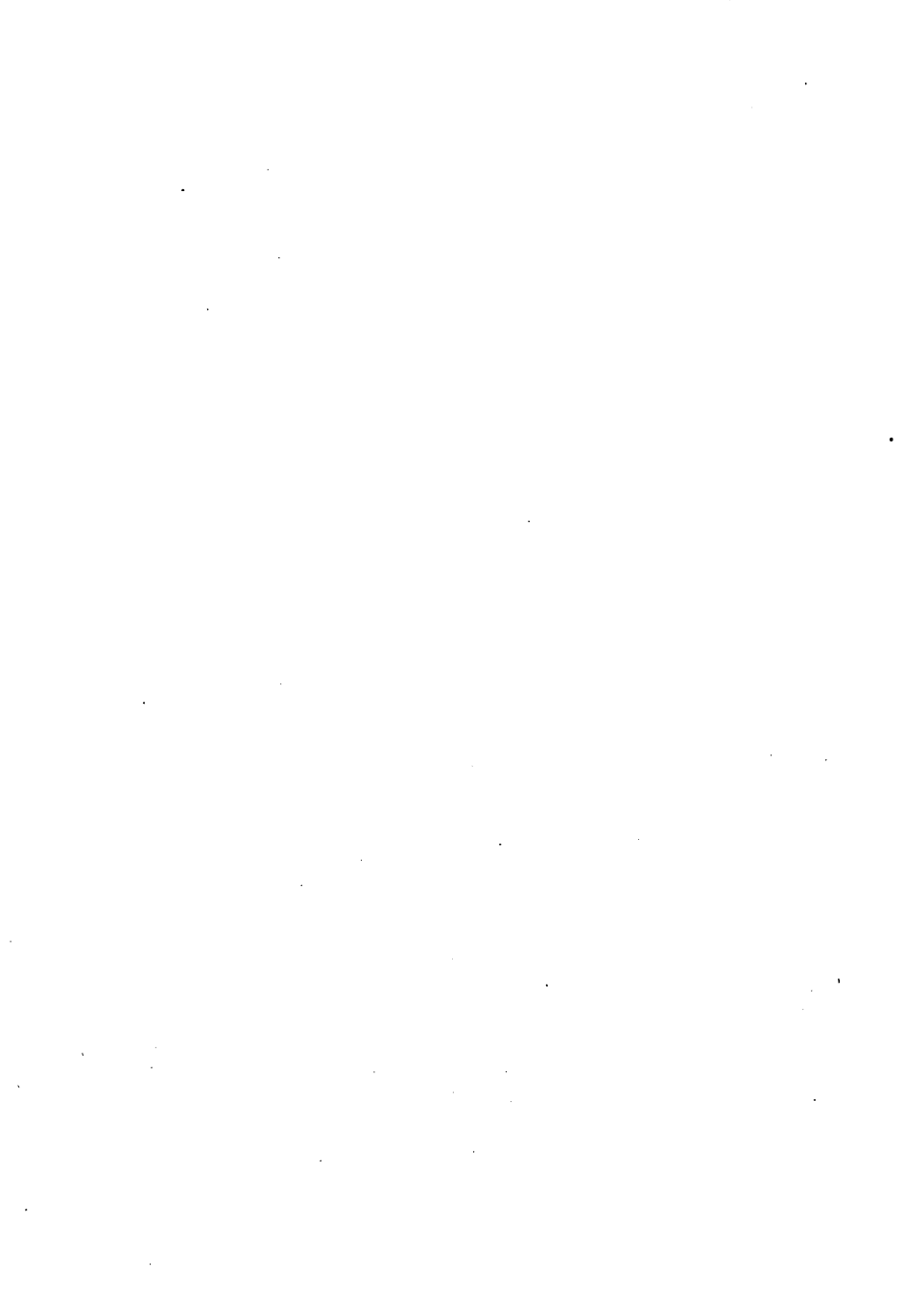
FOURTH YEAR: SECOND HALF

FIRST WEEK

READING NUMBERS; COUNTING

1. Oral Exercises.

ROMAN NUMBERS: I   V   X   L   C   D   M

ARABIC NUMBERS: 1   5   10   50   100   500   1000

Arabic numbers came to us from the Arabs.

Roman numbers were used by the old Romans. They are now often found on the faces of watches and clocks and in inscriptions on public buildings. In books, the numbers of the chapters are usually printed in Roman numbers.

$$XXX = 30 \qquad CC = 200 \qquad LX = 60$$

When the letter at the left has the same value as the one at the right, or is greater in value, the two values are added.

$$IX = 9 \qquad XL = 40 \qquad XC = 90$$

When the letter at the left is less in value than the one at the right, the less is taken from the greater.

1. Read: C   CC   CCC   CD   D   DC   DCC   DCCC
       CM   M

2. Beginning with 1, count by 8's to 105.

3. Beginning with 1, count by 9's to 100.

When we count by 8, we increase the tens' place by 1, and diminish the units' place by 2.

When we count by 9, we increase the tens' place by 1, and diminish the units' place by 1.

WRITING NUMBERS

2. Written Exercises.

Write:

1. One hundred ninety-three thousand four hundred fifty-three.

2. One hundred eighty-two thousand seven hundred.

3. One hundred seventy-five thousand eight hundred sixty-three.

4. One hundred nineteen thousand nine hundred eighty-seven.

5. One hundred thousand five.

6. One hundred ninety-five dollars and forty-seven cents.

7. Three hundred six dollars and twenty-five cents.

8. Nine hundred dollars and fifty cents.

9. Fifty dollars and eight cents.

10. Seven hundred dollars and fifty-nine cents.

11. Write in Roman numbers: 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000.

ADDITION

3. Oral Exercises.

Add 27 and 35

Add 27 and the tens' figure of the second addend: $27+30=57$. Then add the units' figure of the second addend: $57 + 5 = 62$.

Think 27, 57, 62.

1. Give answers:

$29 + 39$	$29 + 48$	$38 + 57$	$47 + 66$	$56 + 75$
$65 + 54$	$73 + 19$	$82 + 17$	$63 + 35$	$64 + 29$

2. In adding, group by 10 whenever you can do so. Thus:

```
4 ⟩10          5 ⟍
6              4 ⟩10
9              1 ⟋
8              7
9 ⟩10          4 ⟍
1 ⟋            4 ⟩10
――             2 ⟋
37             ――
               27
```

Think 10, 18, 27, 37.

Think 10, 17, 27.

3. Add, grouping by 10:

7	6	5	9	4
3	3	5	1	6
2	1	9	8	5
8	7	2	5	5
1	8	2	4	9
5	1	6	2	8
9	1	8	7	7

4. Written Exercises.

Add each column upwards and downwards.

Write dollars under dollars, cent point under cent point, and cents under cents.

In adding dollars and cents, place $ before the first addend and before the answer.

Group by 10, when you can do so.

1.	2.	3.
9,653	$37.65	9,786
7,467	49.33	11,654
8,309	9.87	10,842
4,500	3.10	12,649
9,009	65.98	8,565
5,676	74.67	29,016
87	56.00	4,939
8,000	89.95	5,730
3,993	37.85	87

4. Add: Ninety-seven dollars and nineteen cents,
Thirty-nine dollars and forty-six cents,
Seventy-eight dollars and thirty-eight cents,
Fifty-four dollars and twenty-seven cents,
Twenty-five dollars and seventy-nine cents,
Sixty-six dollars and thirty-five cents.

5. Add: Ninety-three dollars and sixty-nine cents,
Sixty-three dollars and fifty-six cents,
Seventy-two dollars and eighteen cents,
Thirty-four dollars and sixty-two cents,
Eighty dollars and ninety-five cents,

Forty-five dollars and sixty-five cents,
One dollar and seventy-six cents,
Seventy-nine dollars and ninety-nine cents,
Twenty-eight dollars and seventy-five cents.

SUBTRACTION

5. Oral Exercises.

From 31 subtract 12.

From 31 subtract the tens' figure of the subtrahend:
31 − 10 = 21. Then subtract the units' figure of the subtrahend:
21 − 2 = 19.

Think 31, 21, 19.

1. Give answers:

41 − 12	56 − 15	32 − 19	71 − 41
62 − 31	82 − 57	57 − 36	72 − 32
83 − 21	87 − 61	92 − 46	51 − 14

2. Subtract:

37 − 15	45 − 24	52 − 21	74 − 36
66 − 25	36 − 25	42 − 31	61 − 16
65 − 32	46 − 24	77 − 47	43 − 22

6. Written Exercises.

1. Subtract:

157,938	191,875	163,567
148,752	172,694	144,618

2. From ninety-five thousand three hundred forty-nine subtract thirty-six thousand one hundred fifty-seven.

Name and supply the missing term:

3. 　　4,527　　　　　　**4.** 　　8,564
　　　− 　?　　　　　　　　　− 6,625
　　　—————　　　　　　　　—————
　　　　1,411　　　　　　　　　　　?

5. Find the missing term: $67 + ? = 650$.

MULTIPLICATION

7. Oral Exercises.

1. Find products:

2×14　　2×15　　2×16　　3×17　　4×15　　5×15

2. Multiply:

2×17　　3×15　　3×20　　2×20　　4×20　　5×20

3. Review the multiplication table of sixes.

8. Written Exercises.

When we multiply dollars and cents by a whole number, we *mark off in the product two places, beginning with the right-hand figure.*

Find the cost of 3 suits of clothes at $7.25 each.

$$\begin{array}{r} \$7.25 \\ 3 \\ \hline \$21.75 \end{array}$$

Find products:

1. $\$29.42 \times 16$　　　**3.** $\$ 35.60 \times 25$　　　**5.** $\$78.60 \times 36$

2. $\$79.59 \times 91$　　　**4.** $\$832.18 \times 12$　　　**6.** $2{,}373 \times 100$

DIVISION

9. Oral Exercises.

$2 \times 3 = 6$ 2 and 3 are factors of 6.
$3 \times 3 = 9$ 3 and 3 are factors of 9.
$3 \times 5 = 15$ 3 and 5 are factors of 15.

The multiplier and the multiplicand are factors of the product.

$2 \times 3 \times 7 = 42$ 2, 3, and 7 are factors of 42.

The **factors** of a number are the numbers that, when multiplied together, produce that number.

$14 \div 2 = 7$ 2 is a factor of 14.
$14 \div 7 = 2$ 7 is a factor of 14.

An exact divisor of a number is a factor of that number.

1. Supply the missing factors:

$? \times 12 = 60$ $11 \times ? = 55$
$5 \times ? = 45$ $? \times 7 = 42$
$7 \times ? = 35$ $5 \times ? = 30$

2. Give two factors of the following: 48, 54, 72, 66, 36, 60.

3. Divide at sight:

$10)\overline{65}$ $12)\overline{69}$ $6)\overline{68}$ $5)\overline{41}$ $6)\overline{58}$ $6)\overline{46}$

4. Give results quickly:

$6)\overline{41}$ $5)\overline{49}$ $6)\overline{77}$ $11)\overline{59}$ $6)\overline{51}$ $10)\overline{34}$

10. Written Exercises.

In 1 hogshead of molasses there are 63 gallons. How many hogsheads are there in 65,394 gallons?

$65 \div 63 = 1$.   Write 1 in the quotient over 5, the right-hand figure of the first partial dividend 65.

$63 \times 1 = 63$.   Write 63 under 65.

$65 - 63 = 2$.   Bring down 3.

23, the second partial dividend, does not contain 63.   Write 0 in the quotient over the 3.

Bring down 9.

$239 \div 63 = 3$.   Write 3 in the quotient over 9, the right-hand figure of the third partial dividend 239.

$63 \times 3 = 189$.   Write 189 under 239.

$239 - 189 = 50$.   Bring down 4.

$504 \div 63 = 8$.   Write 8 in the quotient over 4, the right-hand figure of the fourth partial dividend.

$63 \times 8 = 504$.   Write 504 under 504.

```
        1038 (hhds.)
    63)65394
       63
       ‾‾‾
       239
       189
       ‾‾‾
       504
       504
       ‾‾‾
```

To prove an example in division, *multiply the quotient by the divisor and add the remainder, if there is one.* If the result is the same as the dividend, the division is correct.

Find quotients and prove:

    1. $95,865 \div 21$ **3.** $89,440 \div 32$

    2. $84,482 \div 42$ **4.** $26,208 \div 72$

             5. $75,366 \div 53$

FRACTIONS

11. Oral Exercises.

1. Give answers:

$\frac{1}{2}$ of 10	$\frac{1}{3}$ of 9	$\frac{2}{3}$ of 6	$\frac{1}{4}$ of 12	$\frac{3}{4}$ of 8
$\frac{1}{5}$ of 15	$\frac{4}{5}$ of 5	$\frac{1}{6}$ of 12	$\frac{5}{6}$ of 6	$\frac{1}{7}$ of 28

2. Find:

$\frac{3}{7}$ of 21	$\frac{5}{7}$ of 7	$\frac{1}{8}$ of 32	$\frac{3}{8}$ of 24	$\frac{7}{8}$ of 8
$\frac{1}{9}$ of 54	$\frac{7}{9}$ of 18	$\frac{1}{10}$ of 40	$\frac{3}{10}$ of 30	$\frac{1}{11}$ of 99

12. Oral Exercises.

Take 3 sheets of paper of equal size.

1. Divide one sheet into two equal parts.
What is each part called? Write it in figures.

On each part of your paper, write: one half
$\frac{1}{2}$

One half + one half = ?

$\frac{1}{2} + \frac{1}{2} = $?

2. Place the two pieces of paper together. Take away one piece. What is left?

Two halves − one half = ?

$\frac{2}{2} - \frac{1}{2} = $?

One − one half = ?

$1 - \frac{1}{2} = $?

$\frac{2}{2} - \frac{2}{2} = $?

3. Divide the second sheet of paper into four equal parts. What is each part called? Write it in figures.

On each part of your paper, write: one fourth $\frac{1}{4}$

Two fourths and two fourths = ? Prove by placing the parts of your paper together.

4. Add: $\frac{2}{4} + \frac{2}{4}$ $\frac{1}{4} + \frac{3}{4}$ $\frac{3}{4} + \frac{1}{4}$ $\frac{1}{4} + \frac{1}{2}$

5. Subtract: $1 - \frac{2}{4}$ $\frac{4}{4} - \frac{3}{4}$ $1 - \frac{3}{4}$ $\frac{3}{4} - \frac{1}{4}$

        $\frac{2}{4} - \frac{1}{4}$ $\frac{1}{4} - \frac{1}{4}$ $\frac{4}{4} - \frac{4}{4}$ $1 - \frac{4}{4}$

6. Place the two halves of your paper together.

Place the four fourths on the two halves.

How many fourths are there in two halves?

     $\frac{?}{4} = \frac{2}{2}$

How many fourths in one half?

     $\frac{?}{4} = \frac{1}{2}$

7. $\frac{1}{2} + \frac{1}{4} = ?$ Prove by placing the half sheet and fourth sheet together. $\frac{1}{2} + \frac{2}{4} = ?$

8. $\frac{4}{4} - \frac{1}{2} = ?$ $\frac{3}{4} - \frac{1}{2} = ?$ $\frac{4}{4} - \frac{2}{2} = ?$

   $1 - \frac{1}{2} = ?$ $\frac{2}{4} - \frac{1}{2} = ?$ $1 - \frac{2}{2} = ?$

9. Divide the third sheet of paper into three equal parts.

   $1 - \frac{1}{3} = ?$ $\frac{3}{3} - \frac{1}{3} = ?$ $\frac{2}{3} - \frac{1}{3} = ?$ $\frac{1}{3} - \frac{1}{3} = ?$

10. $1 - \frac{2}{3} = ?$ $\frac{3}{3} - \frac{2}{3} = ?$ $\frac{1}{3} + \frac{1}{3} = ?$ $\frac{1}{3} + \frac{2}{3} = ?$

13. Oral Problems.

1. John had a dollar. How many half dollars did he have? How many quarters did he have? If he spent a quarter, how much did he have left? If he spent 3 quarters, how much did he have left?

2. Mary had a pie. She ate one third of it and gave one third of it to her sister. How much of the pie was left?

3. Charlie had a stick of candy and ate one third of it. He divided the remainder equally between his two brothers. What part of a stick did each brother receive?

4. George had two cakes. He gave one half of one to his cousin. How much did he have left?

5. Mother baked 3 pies. She gave one third of a pie to Jane. How much was left?

6. John had two sticks of candy. He gave one fourth of one stick to his brother. How much did he have left?

7. On one shelf of the closet I saw one whole pie and a half pie. On another shelf I saw a half pie. How many pies were there?

8. A little boy is holding in one hand an apple and a half. In his other hand, he is holding a quarter apple. How many apples has he in both hands?

9. In one pocket I have one dollar and 3 quarters. In a second pocket, I have 1 quarter. How much have I in all?

10. A girl had a stick and a half of candy. She ate one fourth of a stick. How much did she have left?

11. A peddler had one whole watermelon, and three fourths of another one. He sold the three fourths. How much did he have left?

12. A baker had one whole cake and three fourths of another cake. He sold one half cake. How much did he have left?

MIXED NUMBERS

1, 2, 3, etc., are units or whole numbers.

The word *fraction* means "a part."

$\frac{1}{2}$ is a **proper fraction**, because it is a part of a unit.

Name some proper fractions.

$1\frac{1}{2}$ is a **mixed number**, because it contains a whole number and a fraction.

Name the whole numbers in the following examples.

Name the mixed numbers in the following examples.

14. Written Exercises.

Add:

1.	**2.**	**3.**	**4.**	**5.**	**6.**
$17\frac{1}{2}$	$1\frac{1}{4}$	5	$9\frac{1}{4}$	$4\frac{1}{2}$	$10\frac{1}{4}$
$5\frac{1}{2}$	8	$3\frac{1}{2}$	$1\frac{1}{4}$	4	5
7	$8\frac{1}{4}$	$7\frac{1}{4}$	$4\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{1}{2}$

7.	**8.**	**9.**	**10.**	**11.**	**12.**
$3\frac{1}{4}$	$6\frac{1}{2}$	11	7	$2\frac{3}{4}$	$1\frac{1}{2}$
4	8	$1\frac{1}{4}$	$2\frac{3}{4}$	9	$2\frac{1}{4}$
$1\frac{1}{4}$	$2\frac{1}{4}$	$4\frac{3}{4}$	$1\frac{1}{4}$	$2\frac{1}{4}$	6

13. How many yards of cloth are there in 21 dresses, if each dress contains $6\frac{1}{3}$ yards?

$$
\begin{array}{r}
21 \\
6\frac{1}{3} \\
\hline
7 = \frac{1}{3} \times 21 \\
126 = 6 \times 21 \\
\hline
\textit{Ans. } 133 \text{ (yd.)}
\end{array}
$$

Find products:

14. $18 \times 6\frac{1}{2}$ **16.** $27 \times 7\frac{1}{3}$ **18.** $24 \times 5\frac{1}{4}$

15. $15 \times 8\frac{1}{5}$ **17.** $36 \times 4\frac{1}{6}$ **19.** $42 \times 6\frac{1}{7}$

15. Written Problems.

1. What is the cost of $5\frac{1}{2}$ pounds of coffee at $.32 per pound?

2. Jane bought $8\frac{1}{3}$ yards of ribbon in one store and $16\frac{2}{3}$ yards in another store. How many yards did she buy in both stores?

3. In a certain family the father earns $18.50 per week; one son earns $11.75; a second son $9.25; a third son $5.50; and the daughter $12.60. How much do the five earn?

4. A tailor cut $9\frac{1}{2}$ yards of cloth from a roll containing $27\frac{3}{4}$ yards. How many yards were left?

5. A grocery store sold $12,393.56 worth of goods in one year. The expenses were $9,470.22. What were the profits?

6. Find the cost of 15 yards of velvet at $7.50 per yard and 22 yards of braid at $.27 per yard.

7. John saved $16\frac{1}{4}$. His uncle gave him $6\frac{3}{4}$ more. How much did he then have?

8. There are 1,760 yards in a mile. Yesterday I walked $2\frac{1}{4}$ miles. How many yards did I walk?

9. At $.40 per quart, how much will 12 gallons of vinegar cost?

10. During November we bought from our newsdealer on every weekday 2 morning papers at 1 cent each, and 1 evening paper at 1 cent. On Sundays we bought 2 papers at 5 cents each. There were 4 Sundays in the month. How much did we pay for newspapers during the month?

SECOND WEEK

READING NUMBERS; COUNTING

16. Oral Exercises.

1. Read:

201,516	282,435
295,047	278,004
309,406	361,000
370,290	347,660
395,700	308,801

2. Read: CX   CCXX   CCCXXX   CDXL   D   DL DCLX   DCCLXX   DCCCLXXX   CMXC

3. Beginning with 2, count by 8's to 106.

4. Beginning with 2, count by 9's to 101.

5. Beginning with 61, count backwards by 5's.

WRITING NUMBERS

17. Written Exercises.

Write:

1. Two hundred nineteen thousand three hundred four.

2. Two hundred eighty-three thousand fifty-six.

3. Three hundred eighty-one thousand forty-seven.

4. Three hundred forty thousand five hundred nine.

5. Three hundred seventy-four thousand five hundred three.

6. Eight hundred fifty dollars and seventy-five cents.

7. Sixty-seven dollars and nine cents.

8. Four hundred five dollars and nineteen cents.

9. Two hundred fourteen dollars and one cent.

10. One thousand six hundred fifty-three dollars and ten cents.

ADDITION

18. Oral Exercises.

1. Give answers:

28 + 38   29 + 48   37 + 57   46 + 66   55 + 75

2. Add:

64 + 84   73 + 93   82 + 92   91 + 91   90 + 90

19. Written Exercises.

Add: 1. $	2.	3. $
245.35	8,868	225.79
150.63	13,259	89.64
98.46	6,571	248.26
1,176.84	17,999	307.55
81.95	6,115	90.84
216.44	18,276	65.95
139.37	7,364	187.38
78.52	31,228	87.65
116.08	18,459	251.72

4. Nineteen thousand five hundred sixty,
   Twenty-two thousand three hundred thirty-nine,
   Eight thousand four hundred seventy-five,

Twenty-nine thousand three hundred eighty-seven,
Seven thousand six,
Eighteen thousand,
Seven thousand six hundred eighty-four,
Fourteen thousand three hundred sixty,
Nine thousand nine hundred seventy-nine.

SUBTRACTION

20. Oral Exercises.

1. Give answers:

64 — 33	35 — 18	53 — 31	96 — 45
86 — 13	91 — 62	47 — 26	74 — 19

2. Subtract:

76 — 48	42 — 18	84 — 59	45 — 23
47 — 17	65 — 34	52 — 17	37 — 16
81 — 63	75 — 58	94 — 60	62 — 44

21. Written Exercises.

In copying these examples, be sure that you write dollars under dollars, cent point under cent point, and cents under cents.

In subtracting dollars and cents, write the $ before the minuend and before the difference.

Subtract:

1. $1916.43	**2.** $125.50	**3.** $367.25	**4.** $739.75
807.14	76.25	175.30	445.82

MULTIPLICATION

22. Oral Exercises.

1. Find products:

   4×8 6×8 7×12 8×7 2×21 3×22

2. Multiply:

   4×25 5×13 2×25 2×22 2×31 3×21

3. Review the multiplication table of sevens.

23. Written Exercises.

Find products:

1.	$\$89.45 \times \ \ 75$	**4.**	$\$9.63 \times 156$	**7.**	$\$78.69 \times 91$
2.	$\$8.49 \times 234$	**5.**	$\$7.84 \times 325$	**8.**	$5,492 \times 36$
3.	655×100	**6.**	$7,882 \times 10$	**9.**	$\$65.74 \times 87$

DIVISION

24. Oral Exercises.

$4 \div 2 = 2$ 4 is a multiple of 2.

$\left. \begin{array}{l} 6 \div 2 = 3 \\ 6 \div 3 = 2 \end{array} \right\}$ 6 is a multiple of 2 and also of 3.

$9 \div 3 = 3$ 9 is a multiple of 3.

A **multiple** of a number is an exact dividend of that number.

16 is not an exact dividend of 5.   Why?

1. Draw a figure similar to this one.   Under 2, write all the multiples of 2 up to 30.

Under 3, write all the multiples of 3 up to 30.

Under 4, write all the multiples of 4 up to 30.

2. Supply the missing multiples:

$? \div 12 = 10$ $\qquad$ $? \div 12 = 9$

$? \div 10 = 11$ $\qquad$ $? \div \ 9 = 9$

$? \div \ 9 = \ 7$ $\qquad$ $? \div 11 = 9$

3. Divide at sight:

$\frac{76}{10}$ $\qquad$ $\frac{88}{9}$ $\qquad$ $\frac{91}{11}$ $\qquad$ $\frac{67}{7}$

$\frac{104}{9}$ $\qquad$ $\frac{98}{10}$ $\qquad$ $\frac{84}{11}$ $\qquad$ $\frac{44}{5}$

$\frac{111}{9}$ $\qquad$ $\frac{105}{10}$ $\qquad$ $\frac{111}{10}$ $\qquad$ $\frac{122}{12}$

25. Written Exercises.

Divide $463.76 by 62.

$$
\begin{array}{r}
7.48 \\
62\overline{)463.76} \\
434 \\
\hline
29\ 7 \\
24\ 8 \\
\hline
4\ 96 \\
4\ 96 \\
\hline
\end{array}
$$

Write the cent point of the quotient over the cent point of the dividend.

$463 \div 62 = 7$. Write the 7 in the quotient over 3, the right-hand figure of the first partial dividend.

$62 \times 7 = 434$. $463 - 434 = 29$, remainder.

Bring down 7 from the quotient.

$297 \div 62 = 4$. Write the 4 in the quotient over 7.

$62 \times 4 = 248$. $297 - 248 = 49$.

Bring down 6 from the quotient.

$496 \div 62 = 8$. Write the 8 in the quotient over 6.

$62 \times 8 = 496$.

Find quotients and prove:

1. $422.82 $\div$ 27 $\qquad$ **3.** $1344.16 $\div$ 31 $\qquad$ **5.** $1843.68 $\div$ 24

2. $1474.56 $\div$ 64 $\qquad$ **4.** $782.92 $\div$ 46 $\qquad$ **6.** $439.92 $\div$ 52

FRACTIONS

26. Oral Exercises.

1. Give answers:

$\frac{1}{2}$ of 12 $\frac{1}{3}$ of 15 $\frac{2}{3}$ of 12 $\frac{1}{4}$ of 20 $\frac{3}{4}$ of 16

$\frac{1}{5}$ of 30 $\frac{3}{5}$ of 25 $\frac{4}{5}$ of 20 $\frac{1}{6}$ of 24 $\frac{5}{6}$ of 18

2. Find:

$\frac{1}{7}$ of 56 $\frac{3}{7}$ of 49 $\frac{4}{7}$ of 42 $\frac{5}{7}$ of 35 $\frac{6}{7}$ of 28

$\frac{1}{8}$ of 64 $\frac{3}{8}$ of 56 $\frac{5}{8}$ of 48 $\frac{7}{8}$ of 40 $\frac{1}{8}$ of 108

3. Give answers at sight:

$\frac{1}{2}$ $1\frac{1}{2}$ $\frac{1}{2}$ $1\frac{1}{2}$ 2
$+\ \frac{1}{2}$ $+\ \frac{1}{2}$ $+1\frac{1}{2}$ $+1\frac{1}{2}$ $+\ \frac{1}{2}$

$2\frac{1}{2}$ $2\frac{1}{2}$ 3 $3\frac{1}{2}$ 6
$+\ \frac{1}{2}$ $+1\frac{1}{2}$ $+1\frac{1}{2}$ $+1\frac{1}{2}$ $+\ \frac{1}{2}$

4. Give results quickly:

$7\frac{1}{2}$ $5\frac{1}{2}$ $\frac{1}{4}$ $\frac{3}{4}$
$+2\frac{1}{2}$ $+2\frac{1}{2}$ $+\ \frac{1}{4}$ $+\frac{1}{4}$

$\frac{2}{4}$ $\frac{2}{4}$ $1\frac{1}{4}$ 1
$+\ \frac{2}{4}$ $+\ \frac{1}{4}$ $+\ \frac{1}{4}$ $+\ \frac{3}{4}$

5. Give answers at sight:

$1\frac{1}{4}$ $3\frac{2}{4}$ $2\frac{3}{4}$ $4\frac{1}{4}$ 7 $5\frac{3}{4}$
$+1\frac{1}{4}$ $+1\frac{1}{4}$ $+5\frac{1}{4}$ $+3\frac{3}{4}$ $+\ \frac{3}{4}$ $+4\frac{1}{4}$

$\frac{1}{3}+\frac{1}{3}$ $1\frac{1}{3}+\frac{1}{3}$ $1\frac{1}{3}+1\frac{1}{3}$ $3+\frac{1}{3}$ $4\frac{1}{3}+\frac{1}{3}$

6. Add:

$4\frac{1}{3} + 3\frac{1}{3}$ $5 + 2\frac{1}{3}$ $\frac{1}{3} + \frac{2}{3}$ $4\frac{1}{3} + \frac{2}{3}$ $5\frac{1}{3} + 4\frac{2}{3}$

7. Subtract rapidly:

$$
\begin{array}{ccccc}
1 & 1\frac{1}{2} & 1\frac{1}{2} & 2 & 2\frac{1}{2} \\
-\frac{1}{2} & -1 & -\frac{1}{2} & -1\frac{1}{2} & -1\frac{1}{2}
\end{array}
$$

$$
\begin{array}{ccccc}
3 & 4 & 5\frac{1}{2} & 7 & 9\frac{1}{2} \\
-1\frac{1}{2} & -\frac{1}{2} & -2\frac{1}{2} & -3\frac{1}{2} & -4
\end{array}
$$

8. Give answers at sight:

$$
\begin{array}{ccccc}
8\frac{1}{2} & 10 & 1 & 1 & 1\frac{1}{4} \\
-3\frac{1}{2} & -9\frac{1}{2} & -\frac{1}{4} & -\frac{3}{4} & -\frac{1}{4}
\end{array}
$$

$$
\begin{array}{ccccc}
5 & 1\frac{3}{4} & 6\frac{2}{4} & 4 & 7\frac{3}{4} \\
-\frac{2}{4} & -1\frac{1}{4} & -\frac{2}{4} & -1\frac{3}{4} & -5\frac{2}{4}
\end{array}
$$

$$
\begin{array}{ccccc}
4\frac{1}{4} & 10\frac{2}{4} & 8\frac{1}{4} & 5\frac{1}{4} & 5 \\
-2\frac{1}{4} & -9\frac{1}{4} & -7 & -5 & -1\frac{1}{4}
\end{array}
$$

9. Subtract:

$1 - \frac{1}{3}$ $1 - \frac{2}{3}$ $1\frac{1}{3} - \frac{1}{3}$ $4\frac{2}{3} - \frac{1}{3}$ $3\frac{1}{3} - 1\frac{1}{3}$

$5\frac{2}{3} - 2\frac{2}{3}$ $10 - \frac{1}{3}$ $9 - \frac{2}{3}$ $8\frac{2}{3} - 7\frac{1}{3}$ $5\frac{2}{3} - \frac{2}{3}$

27. Written Exercises.

1. Find 4 whole numbers in the following examples.

2. Find 2 proper fractions in the following examples.

3. Find 6 mixed numbers in the following examples.

Add:
    4. $16\frac{1}{3}$ **5.** $15\frac{2}{3}$ **6.** $24\frac{1}{3}$
        $6\frac{1}{3}$ $4\frac{1}{3}$ $19\frac{1}{3}$

    7. 5 **8.** $2\frac{2}{3}$ **9.** $2\frac{1}{3}$
        $2\frac{1}{3}$ 7 $3\frac{1}{3}$
        $4\frac{1}{3}$ $1\frac{1}{3}$ $5\frac{1}{3}$

Subtract:
    10. $29\frac{1}{3}$ **13.** 30
         $18\frac{1}{3}$ $\frac{1}{3}$

    11. $18\frac{2}{3}$ **14.** 29
         $9\frac{1}{3}$ $\frac{2}{3}$

    12. $25\frac{1}{3}$ **15.** $18\frac{2}{3}$
         $6\frac{2}{3}$ $5\frac{1}{3}$

Find products:
16. $32 \times 7\frac{1}{8}$ **18.** $27 \times 9\frac{1}{8}$ **20.** $30 \times 6\frac{1}{10}$
17. $44 \times 7\frac{1}{11}$ **19.** $36 \times 4\frac{1}{12}$ $49 \times 8\frac{1}{7}$

28. Oral Problems.

If you buy $\frac{1}{2}$ pound of butter at the grocer's for $.22 and give the clerk a 50-cent piece, he may take 3 cents and a 25-cent piece from the till and say "22 cents (meaning the price of your purchase), 25 cents (giving you the 3 cents), 50 cents (giving you the quarter)." Or he may give you 3 cents, 1 nickel, and 2 dimes, saying, "22, 25, 30, 50 cents."

Or he may hand you the entire change, saying, "22 (meaning the amount of your purchase), 28 (meaning your change), 50."

1. Count the change from 50 cents for the following purchases:

39¢	28¢	17¢	41¢
33¢	26¢	15¢	9¢
23¢	32¢	12¢	36¢
14¢	38¢	24¢	11¢

2. Mother baked 3 pies yesterday. To-day we ate $1\frac{1}{4}$ pies. How many are left?

3. Mother paid $1\frac{3}{4}$ for Mary's hat and $2\frac{1}{4}$ for Kate's hat. What did she pay for the two hats?

4. Kate had $1.08 and spent $\frac{2}{3}$ of it. How much did she spend?

5. What will 5 Spellers cost at 15¢ each?

6. At the rate of 5 for $.12, what will 35 oranges cost?

7. If 9 blank books cost $.81, what will 7 cost?

8. Three brothers saved $.96. If each one saved an equal amount, how much did each save?

9. Clare was ill and sat at the window all day. She counted 37 automobiles that passed in the morning and 49 that passed in the afternoon. How many automobiles did she see that day?

10. Ted Brown to-day painted $\frac{7}{8}$ of his father's fence, which is 72 feet long. How many feet of fence did he paint?

11. Susie had $.90. She invited her two cousins to go with her to the theater. She bought 25-cent seats. How much did she have left after paying for the seats?

29. Written Problems.

In working problems, use a horizontal line between the dividend and the divisor to indicate division.

1. At $125 each, how many horses can be bought for $10,875?

$$\text{Write } \frac{10875}{125} =$$

2. If 25 men make $75 in one day, how much will 45 men make at the same rate?

Express your work in this way: $\dfrac{75 \times 45}{25}$

3. A carpenter received $202.50 for working 45 days. How much did he receive per day?

4. A fruit grower paid $36 to ship 12 carloads of fruit. How much would it cost him to ship 96 carloads of fruit at the same rate?

5. In a city school there are 2,565 pupils on register. There are 57 classes in the school. Find the average number of pupils in each class.

6. It cost a contractor $45 per day to hire 15 laborers. At the same rate, how much would it cost him to hire 226 laborers for one day?

7. One factor of 1,073 is 29. Find the other factor.

8. How much will 63 barrels of apples cost, if 40 barrels cost $120?

9. A dealer sold 255 tons of coal for $1,402.50. How much did he charge per ton?

10. 5 freight cars carry 125 tons of coal. At this rate, how many tons will 29 freight cars carry?

READING NUMBERS; COUNTING

30. Oral Exercises.

1. Read : 416,332   457,069
           494,990   406,007
           400,874   510,962
           557,939   509,800
           564,408   597,560

2. Beginning with 5, count by 6's to 101.

3. Beginning with 5, count by 7's to 103.

4. Beginning with 73, count backwards by 6's.

31. Written Exercises.

Write :

1. Four hundred thousand two hundred one.

2. Five hundred forty thousand nine hundred seventy.

3. Five hundred four thousand two hundred five.

4. Five hundred sixty-one thousand five hundred nine.

5. Four hundred nine thousand fifty-six.

6. Forty dollars and seven cents.

7. Five hundred dollars and twenty cents.

8. Three hundred one dollars and thirty-one cents.

9. Nine hundred ninety dollars and fifty-eight cents.

10. Five thousand two hundred thirty dollars and forty-three cents.

11. Write in Roman numbers: 111, 222, 333, 444, 500, 555, 666, 777, 888, 999, 1000.

ADDITION

32. Oral Exercises.

Give answers:

20 + 20 + 12	20 + 30 + 15	20 + 50 + 11
10 + 40 + 16	30 + 40 + 19	50 + 30 + 18
40 + 40 + 17	50 + 20 + 14	50 + 10 + 25
10 + 30 + 27	40 + 40 + 26	10 + 60 + 22

33. Written Exercises.

1.	**2.**	**3.**
32,362	49,569	$369.75
15,765	8,672	229.87
12,987	16,309	93.60
9,360	9,687	357.65
16,496	28,558	223.70
22,975	7,485	78.37
18,500	5,009	80.66
8,089	4,876	117.58
7,837	6,000	63.39

4.	29,837	5. $ 62.49	6. $192.57
	56,785	112.56	154.36
	12,268	139.04	78.53
	8,754	76.43	95.22
	5,347	456.74	106.86
	14,015	397.48	228.78
	12,367	233.79	254.41
	23,994	64.58	363.50
	7,350	84.67	184.37

7. Add: Two hundred fifty-eight dollars and sixty-four cents,

Eighty-two dollars and fifty-nine cents,

One hundred eighteen dollars and seventy-six cents,

Two hundred forty-six dollars and fifty-four cents,

One hundred twelve dollars and fifty-nine cents,

Eighty-nine dollars and forty-eight cents,

Ninety-one dollars and seventy-seven cents,

Three hundred twenty-eight dollars and sixty-six cents,

Seventy-five dollars and fifty cents.

8. Add: Thirty-seven thousand six hundred fifty-five,

Twenty-six thousand four hundred sixty-seven,

Fourteen thousand three hundred fifty-two,

Eleven thousand nine hundred eighty-nine,

Nine thousand five hundred seventy-five,

Ten thousand six hundred thirty-three,

Eight thousand nine hundred sixty-four,

Twenty-six thousand five hundred forty-seven,

Twenty thousand three hundred sixty-eight.

MULTIPLICATION

34. Oral Exercises.

1. At 2 cents each, how much will 2 dozen lemons cost? 13 lemons? 32 lemons? 18 lemons? 40 lemons? 43 lemons? 30 lemons?

2. At 3 cents each, how much will 25 oranges cost? 23 oranges? 30 oranges? 31 oranges? 33 oranges?

3. At 4 cents each, how much will 22 roses cost? 21 roses?

4. At 9 cents a quart, how much will 8 quarts of milk cost? 7 quarts? 12 quarts? 6 quarts?

5. At 11 cents a yard, how much will 11 yards of braid cost? 10 yards? 12 yards?

35. Written Exercises.

A baker uses 258 barrels of flour in one day. At that rate, how many barrels will he use in 304 days?

EXPLANATION

```
  258
  304
─────
 1032 = 258 × 4 units
 0000 = 258 × 0 tens
  774 = 258 × 3 hundreds
─────
78432
```

SHORTER WAY

```
  258
  304
─────
 1032
 7740
─────
78432
```

Multiply 258 by 4 and write 2, the right-hand figure of the first partial product (1,032), under 4, the multiplying figure.

258 × 0 tens = 0. Write 0 in the second partial product under 0 in the multiplier.

Multiply 258 by 3 and write 4, the right-hand figure of the partial product, under 3, the multiplying figure.

Be sure always to *write the right-hand figure of each partial product under the place of the multiplying figure.*

Find products:

1. 268 × 304
4. 358 × 206
7. 320 × 407
2. 290 × 209
5. 297 × 306
8. $65.83 × 89
3. 2,334 × 105
6. $57.39 × 94
9. 493 × 1,009

DIVISION
36. Oral Exercises.

1. Supply missing factors:

20 × ? = 100	2 × ? = 30
? × 2 = 28	? × 20 = 40
4 × ? = 80	2 × ? = 32

2. Give two factors of the following:

| 60 | 51 | 45 | 80 | 30 | 34 |
| 90 | 100 | 77 | 40 | 99 | 70 |

3. Give answers:

30 ÷ 3	47 ÷ 4	35 ÷ 4	51 ÷ 4
31 ÷ 4	23 ÷ 3	39 ÷ 4	38 ÷ 3
29 ÷ 3	35 ÷ 3	29 ÷ 4	126 ÷ 12

37. Written Exercises.

Find quotients and prove:

1. 99,873 ÷ 9
3. 140,745 ÷ 33
5. $1,347.84 ÷ 36
2. 390,966 ÷ 51
4. 240,187 ÷ 62
6. $170.52 ÷ 49

FRACTIONS

38. Oral Exercises.

1. Give answers:

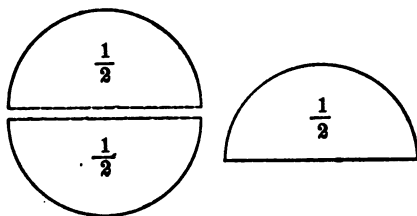|				
$\frac{1}{2}$ of 14	$\frac{2}{3}$ of 18	$\frac{3}{4}$ of 24	$\frac{3}{5}$ of 40	$\frac{1}{6}$ of 36
$\frac{1}{3}$ of 21	$\frac{1}{4}$ of 28	$\frac{1}{5}$ of 45	$\frac{4}{5}$ of 35	$\frac{5}{6}$ of 30

2. Find:

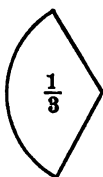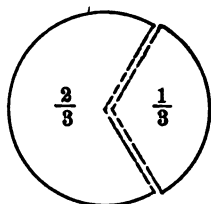|				
$\frac{1}{7}$ of 77	$\frac{4}{7}$ of 63	$\frac{1}{8}$ of 96	$\frac{5}{8}$ of 80	$\frac{7}{9}$ of 9
$\frac{3}{7}$ of 70	$\frac{5}{7}$ of 84	$\frac{3}{8}$ of 88	$\frac{7}{8}$ of 72	$\frac{5}{9}$ of 18

39. Oral Exercises.

1. We have here 3 half circles. How many whole circles and what fraction of a circle have we?

2. Add: $\frac{1}{2}$
          $\frac{1}{2}$
          $\frac{1}{2}$

3. Give answers at sight:

$1\frac{1}{2}$	$3\frac{1}{2}$	$\frac{1}{2}$	$1\frac{1}{2}$
$1\frac{1}{2}$	$\frac{1}{2}$	$4\frac{1}{2}$	$1\frac{1}{2}$
$\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$1\frac{1}{2}$

$\frac{2}{3}$ $\frac{1}{3}$ $\frac{1}{3}$

4. How many whole circles and what fraction of a circle are there in these figures?

5. Add:
$$\left.\begin{array}{l}\frac{1}{3}\\[2pt]\frac{1}{3}\\[2pt]\frac{2}{3}\end{array}\right\} = 1$$

$$\left.\begin{array}{l}\frac{2}{3}\\[2pt]\frac{1}{3}\\[2pt]\frac{1}{3}\end{array}\right\} = 1$$

$$\left.\begin{array}{l}\frac{1}{3}\\[2pt]\frac{2}{3}\\[2pt]\frac{1}{3}\end{array}\right\} = 1$$

6. Give answers at sight:

$1\frac{1}{3}$	$\frac{1}{3}$	$3\frac{2}{3}$	$4\frac{1}{3}$
$\frac{1}{3}$	$2\frac{1}{3}$	$1\frac{1}{3}$	$\frac{2}{3}$
$1\frac{2}{3}$	$3\frac{2}{3}$	$\frac{1}{3}$	$\frac{1}{3}$

7. How many whole circles, and what fraction of a circle are there in these figures?

$\frac{8}{4}$ $\frac{1}{4}$ $\frac{1}{4}$

8. Add:
$$\left.\begin{array}{l}\frac{1}{4}\\[2pt]\frac{1}{4}\\[2pt]\frac{3}{4}\end{array}\right\} = 1$$

$$\left.\begin{array}{l}\frac{1}{4}\\[2pt]\frac{3}{4}\\[2pt]\frac{1}{4}\end{array}\right\} = 1$$
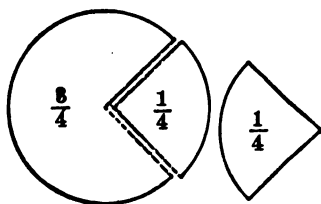
$$\left.\begin{array}{l}\frac{3}{4}\\[2pt]\frac{1}{4}\\[2pt]\frac{1}{4}\end{array}\right\} = 1$$

9. Give answers at sight:

$\frac{1}{4}$	$2\frac{1}{4}$	$3\frac{1}{4}$	$5\frac{3}{4}$
$1\frac{1}{4}$	$\frac{1}{4}$	$1\frac{3}{4}$	$\frac{1}{4}$
$1\frac{3}{4}$	$1\frac{3}{4}$	$\frac{1}{4}$	$1\frac{1}{4}$

40. Written Exercises.

1. Find 5 proper fractions in the following examples.

2. Find 5 mixed numbers in the following examples.

Add, writing answers only :

3. $12\frac{1}{2}$	**6.** $19\frac{1}{2}$	**9.** $\frac{1}{3}$	**12.** $15\frac{1}{4}$
$\frac{1}{2}$	$1\frac{1}{3}$	$15\frac{1}{3}$	$\frac{1}{4}$
$2\frac{1}{2}$	$\frac{1}{2}$	$5\frac{2}{3}$	$3\frac{3}{4}$

4. $\frac{1}{2}$	**7.** $81\frac{1}{3}$	**10.** $24\frac{1}{3}$	**13.** $7\frac{1}{4}$
$14\frac{1}{2}$	$14\frac{2}{3}$	$\frac{1}{3}$	$21\frac{3}{4}$
$5\frac{1}{2}$	$\frac{1}{3}$	$6\frac{2}{3}$	$\frac{1}{4}$

5. $22\frac{1}{2}$	**8.** $17\frac{2}{3}$	**11.** $\frac{1}{4}$	**14.** $18\frac{3}{4}$
$\frac{1}{2}$	$11\frac{1}{3}$	$31\frac{1}{4}$	$\frac{1}{4}$
$6\frac{1}{2}$	$\frac{1}{3}$	$21\frac{3}{4}$	$1\frac{1}{4}$

Write answers only :

As $\frac{2}{4} = \frac{1}{2}$, we change $\frac{2}{4}$ to $\frac{1}{2}$ in answers.

15. $31\frac{3}{4}$	**18.** 15	**21.** $26\frac{1}{2}$	**24.** $17\frac{1}{2}$
$-\ 1\frac{1}{4}$	$-\ 1\frac{3}{4}$	$-\ 3$	$-\ 2\frac{1}{2}$

16. $28\frac{2}{3}$	**19.** $35\frac{2}{3}$	**22.** $19\frac{2}{3}$	**25.** 10
$-\ 1\frac{2}{3}$	$-\ 1\frac{2}{3}$	$-\ 3\frac{1}{3}$	$-\ 2\frac{1}{3}$

17. 17	**20.** $25\frac{3}{4}$	**23.** 7	**26.** $16\frac{3}{4}$
$-\ 5\frac{2}{3}$	$-\ 2\frac{3}{4}$	$-\ 5\frac{1}{4}$	$-\ 1\frac{3}{4}$

41. Oral Problems.

1. A man walked $3\frac{1}{4}$ miles and rode $5\frac{3}{4}$ miles. How far did he go?

2. If 2 dozen eggs cost $.48, what will 4 dozen cost?

3. A bookseller had 27 copies of *Robinson Crusoe* in stock. He bought 67 more. How many copies did he then have?

4. A teacher had 44 pens in one box and 57 in another. How many pens did she have in both boxes?

5. Find the cost of $1\frac{1}{2}$ yards of cloth at $.80 per yard.

6. If 2 pounds of butter cost $.72, what is the price per pound?

7. At $.64 a yard, what will $\frac{5}{8}$ of a yard of ribbon cost?

8. What will 3 pounds of tea cost at $.31 per pound?

9. Harry had $.91 and spent $.37. How much did he have left?

10. Jane read a book of 98 pages in one week. How many pages did she average a day?

42. Written Problems.

1. 265 barrels of flour were sold for $1,656.25. Find the price per barrel.

2. If 320 bushels of corn can be raised on 10 acres of land, how many bushels can be raised on 95 acres, at the same rate?

3. In a year a boy earned $40.56 by running errands. How much did he average per week?

4. A farmer paid $150 for 3 cows. At the same rate, how much must he pay for 73 cows?

5. 1,234 persons entered the grand stand at a ball game. The man in the box office received from them $925.50. What was the price of admission to the grand stand?

6. A farmer sold 9 tons of hay for $180. How much would he receive for 49 tons of hay, at the same rate?

7. A baseball club paid $148.75 for baseball suits for 17 players. How much did each suit cost?

8. A ranchman sold 30 sheep for $120. How much would he charge for 54 sheep, at the same rate?

9. 48 cattle cars carried 1,008 head of cattle. How many head of cattle were in each car?

10. In 24 hours a steamship goes 456 miles. How many miles per hour does it go?

FOURTH WEEK

READING NUMBERS; COUNTING

43. Oral Exercises.

1. Read: 609,834   631,700   794,064   681,008   704,667
670,059   700,827   682,473   719,290   770,501

2. Read: CXIX   CCXXVIII CCCXXXVII CDXLVI
D DLV DCLXIV DCCLXXIII DCCCLXXXII M
CMXCI

3. Beginning with 3, count by 8's to 107.

4. Beginning with 3, count by 9's to 102.

5. Beginning with 83, count backwards by 7's.

WRITING NUMBERS

44. Written Exercises.

Write:

1. Seven hundred seventy-three thousand three hundred seven.

2. Six hundred eighty-five thousand eight hundred eighty.

3. Seven hundred six thousand four hundred.

4. Seven hundred seven thousand three hundred eight.

5. Six hundred ninety-one thousand fifty.

6. Eighty dollars and five cents.

7. Nine hundred eight dollars and seventy-eight cents.

8. Six hundred dollars and thirty-one cents.

9. Two thousand nine hundred dollars and eighty cents.

10. One thousand nine dollars and nine cents.

SUBTRACTION

45. Oral Exercises.

Give answers:

43 − 20	37 − 14	68 − 25	59 − 23	83 − 59
72 − 46	41 − 16	50 − 36	98 − 65	60 − 43
40 − 28	82 − 64	81 − 57	57 − 25	71 − 58
61 − 21	51 − 22	92 − 80	73 − 14	88 − 21
54 − 26	93 − 42	63 − 15	30 − 16	54 − 37

46. Written Exercises.

1. 285,647
   − 953

2. $876.35
   − 139.40

3. Name and supply the missing term:

$$
\begin{array}{r}
7,385 \\
- \quad ? \\
\hline
1,916
\end{array}
$$

4. Find the missing term: $192 + ? = 375$

5. From two hundred seven thousand eight hundred fifty-one subtract one hundred ninety-four thousand six hundred thirty-eight.

Add the numbers in parenthesis and subtract the sum from the first number:

6. 67,564 − (8,432 + 3,297 + 5,638 + 9,745)

7. 56,879 − (4,567 + 9,745 + 9,587 + 7,049 + 12,096)

8. 39,759 − (6,869 + 8,050 + 7,903 + 5,767 + 9,789)

9. 46,886 − (5,762 + 8,685 + 4,076 + 8,018 + 8,647)

10. From two hundred fifty-seven thousand eight hundred sixty-nine subtract one hundred sixty-eight thousand five hundred thirty-seven.

MULTIPLICATION

47. Oral Exercises.

1. Find products:

7 × 12	8 × 7	3 × 31	2 × 34	2 × 18	2 × 43
6 × 9	11 × 10	4 × 14	2 × 40	2 × 30	3 × 33

2. Review the multiplication table of nines.

48. Written Exercises.

Find products:

1.	375 × 109	**4.** $49.97 × 67	**7.**	$6.72 × 453
2.	379 × 204	**5.** 870 × 108	**8.**	248 × 301
3.	7,488 × 10	**6.** 270 × 403	**9.**	785 × 100

DIVISION

49. Oral Exercises.

1. Supply the missing multiples:

? ÷ 3 = 21	? ÷ 25 = 2
? ÷ 22 = 3	? ÷ 2 = 21
? ÷ 21 = 4	? ÷ 25 = 4

2. Divide at sight:

5)600   7)560   5)550   6)420

8)640   7)630   5)450   5)650

7)350   5)300   9)270   4)320

50. Written Exercises.

Find the quotients and prove:

1. 57,244 ÷ 11   3.   63,168 ÷ 64   5. 62,208 ÷ 72

2. 49,765 ÷ 92   4. $7,152.24 ÷ 76   6. 84,506 ÷ 83

FRACTIONS

51. Oral Exercises.

1. Give answers:

$\frac{10}{11}$ of 11	$\frac{5}{7}$ of 14
$\frac{9}{11}$ of 22	$\frac{4}{7}$ of 28
$\frac{8}{11}$ of 33	$\frac{3}{7}$ of 35
$\frac{1}{12}$ of 60	$\frac{1}{6}$ of 72
$\frac{7}{12}$ of 12	$\frac{5}{6}$ of 66

2. Find:

$\frac{5}{12}$ of 24	$\frac{1}{4}$ of 48
$\frac{9}{10}$ of 70	$\frac{1}{3}$ of 36
$\frac{7}{10}$ of 50	$\frac{2}{3}$ of 33
$\frac{3}{10}$ of 60	$\frac{1}{2}$ of 26
$\frac{7}{8}$ of 16	$\frac{1}{2}$ of 30

52. Oral Exercises.

1. $\frac{1}{3} + \frac{1}{3} + \frac{1}{3}$ = how many thirds? How many units?

2. $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3}$ = how many thirds?

3. $\frac{2}{3} + \frac{2}{3}$ = how many thirds?

4. $\frac{2}{3} + \frac{2}{3} + \frac{2}{3}$ = how many thirds?

5. $\frac{3}{4} + \frac{3}{4}$ = how many fourths?

6. $\frac{3}{4} + \frac{3}{4} + \frac{3}{4}$ = how many fourths?

7. $\frac{1}{3}$ is a proper fraction. Why?

8. $\frac{3}{3}$ is not a part of a unit. It is equal to 1. It is called an **improper fraction**.

$\frac{4}{3}$ is not a part of a unit. It is more than 1. It is called an improper fraction.

$\frac{6}{3}$ is an improper fraction. Why?

9. What kind of fraction is $\frac{4}{4}$? $\frac{5}{4}$? $\frac{9}{4}$? Why?

When we have an improper fraction in an answer, we must change it to a mixed number or a whole number.

$\frac{3}{3}=1$	$\frac{4}{3}=4\div3=1\frac{1}{3}$	$\frac{5}{3}=5\div3=1\frac{2}{3}$	$\frac{6}{3}=6\div3=2$
$\frac{4}{4}=1$	$\frac{5}{4}=5\div4=1\frac{1}{4}$	$\frac{6}{4}=6\div4=1\frac{2}{4}$ or $1\frac{1}{2}$	$\frac{9}{4}=9\div4=2\frac{1}{4}$

10. Add, giving answers at sight:

$\frac{2}{3}$	$3\frac{2}{3}$	$5\frac{2}{3}$	$3\frac{2}{3}$
$1\frac{2}{3}$	$2\frac{2}{3}$	$1\frac{2}{3}$	$4\frac{2}{3}$

11. Add at sight:

$7\frac{2}{3}$	$6\frac{2}{3}$	$1\frac{2}{3}$	$1\frac{2}{3}$
$1\frac{2}{3}$	$2\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$
2	1	$\frac{2}{3}$	$1\frac{2}{3}$

12. Add, giving answers at sight:

$2\frac{2}{3}$	$2\frac{2}{3}$	$3\frac{2}{3}$	$4\frac{2}{3}$
$\frac{2}{3}$	$\frac{2}{3}$	$4\frac{2}{3}$	$\frac{2}{3}$
$1\frac{2}{3}$	$2\frac{2}{3}$	$\frac{2}{3}$	$4\frac{2}{3}$

13. $\frac{4}{4}$ = how many units? $\frac{8}{4}$ = how many units?

14. $\frac{2}{4} = \frac{?}{2}$

15. Change $\frac{7}{4}$ to a mixed number.

16. Add, giving answers at sight:

$\frac{3}{4}$	$1\frac{3}{4}$	$2\frac{3}{4}$	$3\frac{3}{4}$
$\frac{3}{4}$	$\frac{3}{4}$	$1\frac{3}{4}$	$3\frac{3}{4}$

$6\frac{3}{4}$	$2\frac{3}{4}$	$\frac{3}{4}$	$1\frac{3}{4}$
$1\frac{3}{4}$	$5\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
2	1	$\frac{3}{4}$	$1\frac{3}{4}$

$2\frac{3}{4}$	$3\frac{3}{4}$	$3\frac{3}{4}$	$4\frac{3}{4}$
$2\frac{3}{4}$	$\frac{3}{4}$	$2\frac{3}{4}$	$1\frac{3}{4}$
$\frac{3}{4}$	$1\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$

53. Oral Exercises.

1. Give answers.   Change $\frac{2}{4}$ to $\frac{1}{2}$ in answers.

6	5	7	$9\frac{3}{4}$
$-\ \frac{3}{4}$	$-\ \frac{2}{3}$	$-\ \frac{1}{3}$	$-\ 5\frac{1}{4}$

$8\frac{1}{3}$	$11\frac{2}{3}$	$10\frac{3}{4}$	$12\frac{2}{4}$
$-\ 6$	$-\ 6\frac{1}{3}$	$-\ 5$	$-\ 9\frac{3}{4}$

$7\frac{2}{3}$	$8\frac{1}{3}$	$8\frac{3}{4}$	$9\frac{2}{3}$
$-\ 7$	$-\ \frac{1}{3}$	$-\ \frac{3}{4}$	$-\ \frac{1}{3}$

2. Add:

$5\frac{1}{2}$	$6\frac{2}{3}$	$4\frac{1}{3}$	$3\frac{3}{4}$
$+\ 3\frac{1}{2}$	$+\ 2\frac{1}{3}$	$+\ 5\frac{1}{3}$	$+\ 5\frac{1}{4}$

$4\frac{2}{3}$	$2\frac{1}{4}$	$3\frac{3}{4}$	$\frac{3}{4}$
$+\ 3\frac{2}{3}$	$+\ 6\frac{3}{4}$	$+\ 4\frac{3}{4}$	$+\ 6\frac{3}{4}$

$2\frac{2}{3}$	$4\frac{1}{2}$	$8\frac{3}{4}$	$1\frac{3}{4}$
$+\ 5\frac{2}{3}$	$+\ 4\frac{1}{2}$	$+\ \frac{3}{4}$	$+\ 7\frac{3}{4}$

54. Written Exercises.

Add, writing answers only:

1. $5\frac{2}{3}$	2. $19\frac{2}{3}$	3. $7\frac{2}{3}$	4. $10\frac{1}{3}$	5. $9\frac{2}{3}$
$3\frac{2}{3}$	$\frac{1}{3}$	$8\frac{1}{3}$	$4\frac{2}{3}$	$5\frac{2}{3}$
$6\frac{2}{3}$	$1\frac{2}{3}$	$1\frac{1}{3}$	$2\frac{2}{3}$	$3\frac{2}{3}$

6. $1\frac{2}{3}$	7. $4\frac{3}{4}$	8. $7\frac{3}{4}$	9. $5\frac{1}{4}$	10. $6\frac{3}{4}$
$11\frac{2}{3}$	$3\frac{3}{4}$	$1\frac{1}{4}$	$5\frac{1}{4}$	$8\frac{3}{4}$
$8\frac{1}{3}$	$5\frac{3}{4}$	$3\frac{3}{4}$	$5\frac{3}{4}$	$1\frac{3}{4}$

55. Oral Problems.

1. If 3 boxes of strawberries cost $.36, what will 6 boxes cost?

2. Mary used $2\frac{1}{3}$ yards of braid in trimming her waist and $6\frac{1}{3}$ yards in trimming her skirt. How many yards of braid did she use for both?

3. On one shelf of the storeroom there are 56 pads of white paper and on another shelf there are 45 pads. How many pads are there on both shelves?

4. I paid $1.05 for 5 pounds of candy. What did I pay per pound?

5. Fred is 7 years old and his grandmother is 9 times as old. How much older than Fred is his grandmother?

6. Find the cost of $1\frac{1}{2}$ doz. eggs at $.40 per dozen.

7. What did Mary pay for 2 pounds of coffee at $.35 per pound?

8. Jenny's storybook has 85 pages. She has read 46 pages. How many pages has she still to read?

9. Susie had $.75 with which to buy ribbon at $.12 per yard. How many whole yards of ribbon did she buy? How many cents did she have left?

10. A baker had 9 apple pies. He sold $7\frac{3}{4}$ pies. How many did he have left?

OUR SCHOOL

56. Written Problems.

1. In the kindergarten of our school there are 54 pupils. In the first-year classes there are 255; in the second-year classes 289; in the third-year classes 314; in the fourth-year classes

277; in the fifth-year 278; in the sixth-year 289; in the seventh-year 182; and in the eighth-year 112.   How many pupils are there in the school?

2. There are 1,032 boys in our school.   How many girls are there?

3. On a certain day $\frac{9}{10}$ of all the pupils were present. How many were present?

4. Last month $\frac{11}{12}$ of the boys received satisfactory marks. How many received satisfactory marks?

5. This year the principal spent \$150.25 for Histories; \$289.30 for Geographies; \$237.65 for Readers; \$198.39 for Arithmetics; \$67.27 for the cooking class; \$93.25 for the workshop; and \$575.74 for writing paper, drawing paper, and other supplies.   How much was spent for these seven items?

6. The principal bought 49 Spellers at \$.18 each.   How much did these books cost?

7. Our school was in session 190 days last year.   How many days was it not in session?

8. In our assembly room there are 308 seats.   How many rows of seats are there, if each row contains 14 seats?

9. Our school yard is $59\frac{2}{3}$ ft. long and $37\frac{1}{3}$ ft. wide.   How much greater is its length than its width?

FIFTH WEEK

READING NUMBERS; COUNTING

57. Oral Exercises.

1. Read: 800,917   964,035

              882,604   863,008

              990,436   801,621

              937,000   824,970

              999,990   1,000,000

2. Beginning with 4, count by 6's to 100.

3. Beginning with 4, count by 7's to 102.

4. Beginning with 94, count backwards by 8's.

WRITING NUMBERS

58. Written Exercises.

Write:

1. Nine hundred thousand eight hundred six.

2. Eight hundred seventy-seven thousand six hundred sixty.

3. Nine hundred seventy-one thousand four.

4. Eight hundred thirty-six thousand four hundred twenty-three.

5. One million.

6. Seven hundred six dollars and eighty-two cents.

7. Nine thousand five dollars and sixteen cents.

8. Thirty-five dollars and ten cents.

9. Five hundred sixteen dollars and two cents.

10. Seven hundred forty-one dollars and fourteen cents.

11. Write in Roman numbers:

1,000	912	823	734	645
500	456	367	278	189

ADDITION

59. Oral Exercises.

1. I bought an article for 48¢ and sold it at a gain of 14¢. Find the selling price.

2. Cost 57¢	Gain 12¢	Selling price ?
3. Cost 69¢	Gain 12¢	Selling price ?
4. Cost 37¢	Gain 9¢	Selling price ?
5. Cost 78¢	Gain 15¢	Selling price ?
6. Cost 89¢	Gain 11¢	Selling price ?
7. Cost 37¢	Gain 16¢	Selling price ?
8. Cost 29¢	Gain 12¢	Selling price ?
9. Cost 58¢	Gain 12¢	Selling price ?
10. Cost 39¢	Gain 14¢	Selling price ?

60. **Written Exercises.**

	1.	2.	3.
	24,967	$267.57	$171.30
	21,872	309.69	170.83
	29,354	477.89	256.25
	18,677	385.04	153.18
	22,565	3.43	151.43
	16,392	64.55	97.57
	25,567	171.32	86.42
	19,747	96.69	151.39
	14,535	27.45	76.11

	4.	5.	6.
	27,364	$ 63.75	5,397
	21,976	212.54	29,863
	19,332	172.53	31,452
	17,875	199.86	18,678
	20,097	167.64	27,584
	18,364	182.29	13,013
	9,999	308.65	8,007
	32,365	151.42	20,675
	7,486	88.86	5,869

7. Add : Three hundred eighty-six dollars and ninety-five cents,

Two hundred ninety-seven dollars and eighty-nine cents,

Four hundred twenty-five dollars and sixty-three cents,

Three hundred eighty-nine dollars and fifty-five cents,

Sixty-four dollars and eighty-nine cents,
Thirty-six dollars and forty-seven cents,
One hundred eighty-four dollars and fifty-three cents,
Seventy-eight dollars and eighty-six cents,
Ninety-five dollars and seventy-two cents.

8. Add: Thirty-nine thousand three hundred fifty-two,
Nineteen thousand two hundred ninety-five,
Forty-seven thousand eight hundred thirty-seven,
Seventeen thousand five hundred twenty,
Twenty-seven thousand three hundred sixty-five,
Eleven thousand nine hundred seventy-nine,
Ten thousand eight hundred sixty-four,
Seventeen thousand three hundred fifty-one,
Nine thousand eight hundred thirty-three.

MULTIPLICATION

61. Oral Exercises.

1. Find the cost of 10 dozen bananas at $.12 per dozen. 11 dozen bananas. 10 dozen bananas.

2. Find the cost of

33 two-cent stamps	41 two-cent stamps
50 two-cent stamps	48 two-cent stamps
44 two-cent stamps	23 two-cent stamps
27 two-cent stamps	38 two-cent stamps

3. Multiply:

2×10	2×20	2×30
2×40	2×50	4×20

4. Multiply:

3 by 100	4 by 200	5 by 300	6 by 200
7 by 200	12 by 300	8 by 400	9 by 300

5. Multiply:

3 by 30	4 by 30	5 by 50	6 by 50
9 by 70	11 by 30	8 by 20	7 by 50

To multiply an integer by 10, place a naught at the right of the integer.

To multiply an integer by 100, place two naughts at the right of the integer.

To multiply an integer by 20, 30, or any number of two orders that ends in 0, *multiply the integer by the number in the tens' place and write a naught at the right of the product.*

62. Written Exercises.

Write answers only:

1. $5,675 \times 10$	**5.** 237×100	**9.** 67×30
2. $9,784 \times 10$	**6.** 598×100	**10.** 149×50
3. $6,359 \times 10$	**7.** 95×20	**11.** 255×60
4. 677×100	**8.** 84×40	**12.** 132×80

DIVISION

63. Oral Exercises.

1. Supply the missing factors:

$32 \times ? = 64$	$? \times 23 = 69$
$? \times 3 = 90$	$3 \times ? = 75$
$4 \times ? = 84$	$? \times 2 = 48$

2. Give two factors of the following: 120, 121, 72, 96, 26, 88.

3. Divide at sight:

$\frac{98}{8}$	$\frac{47}{6}$	$\frac{121}{12}$	$\frac{76}{9}$	$\frac{58}{6}$	$\frac{39}{6}$
$\frac{75}{8}$	$\frac{123}{11}$	$\frac{53}{6}$	$\frac{97}{9}$	$\frac{122}{10}$	$\frac{34}{6}$

64. Written Exercises.

1. $734,892 \div 9$ **3.** $48,853 \div 39$ **5.** $87,659 \div 86$

2. $451,858 \div 94$ **4.** $\$4,961.74 \div 83$ **6.** $\$3,451.55 \div 67$

FRACTIONS

65. Oral Exercises.

1. Give answers:

$\frac{1}{2}$ of 24 $\frac{1}{2}$ of 32 $\frac{1}{2}$ of 50 $\frac{1}{2}$ of 44 $\frac{1}{3}$ of 45

$\frac{1}{3}$ of 60 $\frac{2}{3}$ of 24 $\frac{2}{3}$ of 30 $\frac{3}{4}$ of 44 $\frac{3}{4}$ of 28

2. Find:

$\frac{5}{8}$ of 72 $\frac{8}{9}$ of 99 $\frac{7}{10}$ of 50 $\frac{5}{6}$ of 24 $\frac{9}{10}$ of 80

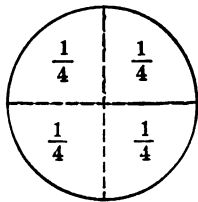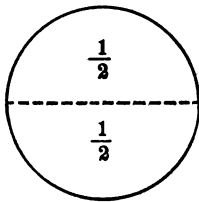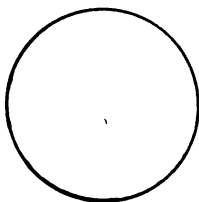$\frac{4}{5}$ of 45 $\frac{3}{8}$ of 64 $\frac{7}{9}$ of 90 $\frac{7}{8}$ of 80 $\frac{6}{7}$ of 42

66. Oral Exercises.

1. How many half circles are there in a whole circle?
How many quarter circles in a whole circle?
How many quarter circles in a half circle?

2. To obtain $\frac{1}{2}$ of a circle, into how many equal parts must a circle be divided?

To obtain $\frac{1}{4}$ of a circle, into how many equal parts must a circle be divided?

3. I wish to give you $\frac{3}{4}$ of a pie. Into how many equal parts must I divide the pie? How many of these equal parts must I give you?

4. I have a large cake. I wish to give you $\frac{3}{8}$ of it. Into how many equal parts must I divide the cake? How many of these equal parts must I give you?

5. To give you $\frac{3}{16}$ of a box of candy, what must I do?

6. Which number in a fraction shows into how many equal parts the thing, or group of things, is divided? Which number in a fraction shows how many of the equal parts are taken?

The number below the line is called the **denominator.**

The number above the line is called the **numerator.**

The numerator and the denominator are called the **terms** of the fraction.

7. Give answers:

$$\frac{1}{2} + \frac{1}{4} + \frac{1}{4} \qquad \frac{1}{2} + \frac{1}{2} + \frac{1}{4} \qquad \frac{1}{2} + \frac{3}{4}$$
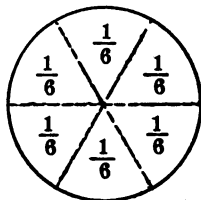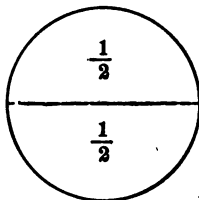$$\frac{1}{2} + \frac{1}{4} + \frac{3}{4} \qquad \frac{1}{2} + \frac{1}{2} + \frac{4}{4} \qquad \frac{1}{2} + \frac{1}{2} + \frac{2}{4}$$

67. Oral Exercises.

1. Into how many equal parts is the second circle divided?

2. If anything is divided into six equal parts, what is each part called?

3. Give answers at sight :

$$\tfrac{1}{2} = \tfrac{?}{6} \qquad \tfrac{2}{2} = \tfrac{?}{6} \qquad 1 = \tfrac{?}{6} \qquad \tfrac{3}{6} = \tfrac{?}{2}$$

$$\tfrac{1}{2} + \tfrac{1}{6} = ? \qquad \tfrac{1}{2} + \tfrac{1}{6} + \tfrac{1}{6} = ?$$

4. Mother had two pies of equal size. She gave $\tfrac{1}{2}$ of one of them to John, and $\tfrac{3}{6}$ of the other one to Jane. Did John receive more, less, or exactly the same as Jane?

5. Jane received $\tfrac{3}{6}$ of a pie. Into how many pieces was that pie divided? How many of these pieces did Jane receive?

6. In a fraction, what is the number called which shows into how many equal parts a thing, or group of things, is divided?

7. What is the number called which shows how many of these equal parts have been taken?

68. Oral Exercises.

1. Give answers at sight :

$$\tfrac{1}{3} = \tfrac{?}{6} \qquad \tfrac{2}{3} = \tfrac{?}{6}$$

$$\tfrac{4}{6} = \tfrac{?}{3} \qquad \tfrac{6}{6} = \tfrac{?}{3}$$

$$\tfrac{3}{3} = \tfrac{?}{6} \qquad \tfrac{2}{2} = \tfrac{?}{3}$$

$$\tfrac{1}{3} - \tfrac{1}{6} = ? \qquad \tfrac{2}{3} - \tfrac{1}{6} = ?$$

$$\tfrac{3}{3} - \tfrac{5}{6} = ?$$
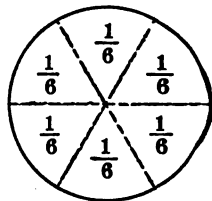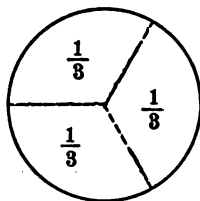
2. Change the improper fraction $\tfrac{7}{6}$ to a mixed number.

3. Change the improper fraction $\tfrac{9}{8}$ to a mixed number.

4. Change the improper fraction $\frac{10}{6}$ to a mixed number.

5. Give answers at sight. In the answers, change $\frac{2}{6}$ to $\frac{1}{3}$, $\frac{4}{6}$ to $\frac{2}{3}$.

2	3	$1\frac{1}{2}$	$2\frac{2}{3}$	$3\frac{1}{2}$
$-\frac{1}{6}$	$-\frac{5}{6}$	$-1\frac{1}{3}$	$-1\frac{1}{6}$	$-1\frac{1}{6}$

6. Answer rapidly :

$2\frac{5}{6}$	$3\frac{5}{6}$	$5\frac{3}{4}$	$8\frac{1}{2}$	7
$-1\frac{1}{2}$	$-2\frac{2}{3}$	$-2\frac{1}{2}$	$-6\frac{1}{4}$	$-2\frac{3}{4}$

7. Tell which is the greater :

$\frac{1}{2}$ or $\frac{1}{4}$ $\frac{1}{2}$ or $\frac{1}{3}$ $\frac{1}{2}$ or $\frac{1}{6}$ $\frac{1}{3}$ or $\frac{1}{4}$ $\frac{1}{6}$ or $\frac{1}{4}$ $\frac{1}{6}$ or $\frac{1}{3}$

8. Tell which is the greater :

$\frac{1}{2}$ or $\frac{2}{2}$ $\frac{3}{4}$ or $\frac{1}{4}$ $\frac{2}{3}$ or $\frac{1}{3}$ $\frac{1}{6}$ or $\frac{5}{6}$ $\frac{4}{6}$ or $\frac{3}{6}$ $\frac{2}{6}$ or $\frac{1}{6}$

9. When the denominator is increased and the numerator remains the same, is the value of the fraction greater or less?

10. When the numerator is increased and the denominator remains the same, is the value of the fraction greater or less?

11. Would you rather have $\frac{1}{4}$ of an apple pie, or $\frac{1}{6}$ of an apple pie? Why?

12. Would you rather have $\frac{1}{4}$ of a box of candy, or $\frac{3}{4}$ of a box of candy? Why?

13. Name the numerators and denominators of the following fractions : $\frac{3}{8}$, $\frac{7}{10}$, $\frac{5}{8}$, $\frac{19}{20}$, $\frac{67}{100}$, $\frac{14}{57}$.

69. Written Exercises.

Add, writing answers only.   In the answers, change $\frac{2}{4}$ to $\frac{1}{2}$.

1.	$1\frac{1}{2}$	2.	$2\frac{1}{2}$	3.	$5\frac{1}{4}$	4.	$3\frac{1}{4}$
	$1\frac{1}{4}$		$1\frac{1}{4}$		$6\frac{3}{4}$		$2\frac{1}{4}$
	$1\frac{1}{4}$		$3\frac{1}{4}$		1		$3\frac{3}{4}$

5.	$4\frac{1}{2}$	6.	$7\frac{1}{2}$	7.	$1\frac{1}{2}$	8.	$3\frac{1}{2}$
	$5\frac{1}{2}$		$1\frac{1}{2}$		$1\frac{1}{2}$		$2\frac{1}{4}$
	$2\frac{1}{4}$		$3\frac{3}{4}$		$1\frac{1}{4}$		$3\frac{1}{4}$
	3		2		$1\frac{1}{4}$		$3\frac{1}{4}$

9.	$3\frac{1}{2}$	10.	$5\frac{1}{2}$	11.	$7\frac{1}{2}$	12.	$3\frac{3}{4}$
	$2\frac{3}{4}$		$4\frac{3}{4}$		$2\frac{1}{4}$		$2\frac{1}{2}$
	$3\frac{1}{2}$		$2\frac{1}{2}$		$3\frac{1}{4}$		$4\frac{1}{4}$
	3		$1\frac{3}{4}$		$1\frac{1}{4}$		$5\frac{3}{4}$

13.	$10\frac{3}{4}$	14.	$9\frac{1}{2}$	15.	8	16.	$9\frac{1}{2}$
	$2\frac{1}{2}$		$10\frac{3}{4}$		$7\frac{3}{4}$		10
	$2\frac{3}{4}$		$1\frac{3}{4}$		$4\frac{3}{4}$		$4\frac{3}{4}$

70. Oral Problems.

1. George spent $6\frac{1}{4}$ for a pair of trousers and $2\frac{1}{2}$ for a hat.   How much did he spend in all?

2. If 2 pounds of hickory nuts cost $.30, what will 6 pounds cost?

3. The janitor placed 51 desks in rows of 7 each.   How many rows did he make and how many extra desks did he have?

4. What will 6 grapefruit cost at $.96 per dozen?

5. How much will 1¼ lb. of butter cost at $.36 per pound?

6. What will 3½ lb. of rice cost at $.08 per pound?

7. What did Charles pay for 6 packages of cream mints at $.14 per package?

8. John spent $.68 at the butcher's. How much change should he receive from a dollar bill?

9. A teacher uses 25 pen points per week. In how many weeks will she use 125 pen points?

10. If 2 packages of gumdrops cost $.20, what will 10 packages cost?

71. Written Problems.

1. A farmer sold 96 pounds of butter at $.25 per pound. With the proceeds he bought young pigs at $3 each. How many pigs did he buy?

2. A telephone girl worked for 275 days in a year and answered, on an average, 209 calls a day. How many calls did she answer in a year?

3. A farmer's wife sold 90 chickens at $.75 each, and took in payment 30 yd. of cloth. What was the cloth worth per yard?

4. Last spring Mrs. Jones bought at different times 12 quart bottles of sirup at $.55 each. This fall she bought a dozen bottles at once for $6.25. How much cheaper was her sirup this fall?

5. A man saves $3 every week. How many years will it take him to save $3,276?

6. The school lunch counter sold 12½ apple pies, 8½ peach pies, and 9½ lemon pies. How many pies were sold?

7. John picked 18¾ quarts of berries and his sister picked 14¼ quarts. How many more quarts did John pick than his sister?

8. A grocer had 55⅔ pounds of coffee and sold 31⅓ pounds. How much coffee is left?

9. A merchant bought 84 yards of carpet at $1.25 a yard. He sold it for $126. How much did he gain?

10. If 9 cows cost $468, what will 24 cows cost?

SIXTH WEEK

READING NUMBERS; COUNTING

72. Oral Exercises.

1. Read: M CMLIX DCCCXLVIII DCCXXXVII DCXLVI DLV CDXXIV CCCXXXII CCXCI

2. Beginning with 4, count by 8's to 100.

3. Beginning with 4, count by 9's to 103.

4. Beginning with 100, count backwards by 9's.

SUBTRACTION

73. Oral Exercises.

1. Give answers:

60 + 10 − 30	10 + 50 − 20	40 + 30 − 50
40 + 10 − 20	50 + 20 − 40	60 + 20 − 30

2. Give answers:

20 + 30 − 40	20 + 70 − 40	50 + 50 − 40
40 + 40 − 50	20 + 20 − 30	80 + 20 − 70

74. Written Exercises.

1. 308,516
    −   809

2. $638.43
    − 549.28

3. From three hundred seventy-six thousand four hundred twenty-three subtract two hundred fifty-three thousand one hundred forty-nine.

4. Name and supply the missing term :   ?

$$- 6,965$$
$$\overline{4,896}$$

5. Find the missing term :   ? + 432 = 619.

6. $1,454.15	**7.** $4,950.09	**8.** 408,603
— 365.20	— 1,728.73	— 6

9. Subtract four hundred twenty-four thousand five hundred sixty-eight from four hundred seventy-five thousand nine hundred forty-three.

MULTIPLICATION

75. Oral Exercises.

1. Find products :

| 90 × 7 | 80 × 8 | 80 × 7 |
| 120 × 6 | 30 × 16 | 20 × 26 |

2. Multiply :

| 2 by 350 | 3 by 130 | 2 by 190 |
| 3 by 140 | 4 by 160 | 2 by 360 |

76. Written Exercises.

Find products :

1. 338 × 70	**5.** $87.16 × 99
2. 129 × 80	**6.** 5.93 × 516
3. 178 × 90	**7.** 5,299 × 64
4. 670 × 108	**8.** 165 × 50

DIVISION
77. Oral Exercises.

1. Supply the missing multiples:

? ÷ 3 = 33	? ÷ 2 = 34
? ÷ 23 = 2	? ÷ 31 = 3
? ÷ 2 = 40	? ÷ 4 = 21

2. Divide at sight:

7)840	9)810	7)490	6)360
8)720	10)110	11)121	8)240
7)350	7)420	7)280	7)560

78. Written Exercises.

Find quotients and prove:

1. 406,764 ÷ 6   3. 69,375 ÷ 48   5. 79,764 ÷ 68
2. 796,768 ÷ 22   4. 91,867 ÷ 89   6. 507,891 ÷ 35

FRACTIONS
79. Oral Exercises.

1. Give answers:

$\frac{1}{5}$ of 70	$\frac{3}{5}$ of 50	$\frac{9}{10}$ of 60	$\frac{5}{8}$ of 72
$\frac{4}{5}$ of 55	$\frac{1}{4}$ of 52	$\frac{2}{3}$ of 27	$\frac{9}{7}$ of 63

2. Find:

$\frac{1}{8}$ of 120	$\frac{3}{4}$ of 36	$\frac{1}{4}$ of 88	$\frac{5}{8}$ of 88
$\frac{3}{10}$ of 90	$\frac{4}{7}$ of 35	$\frac{5}{8}$ of 16	$\frac{8}{9}$ of 72

3. Give answers:

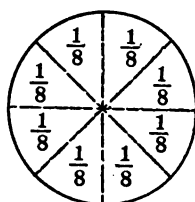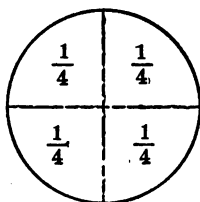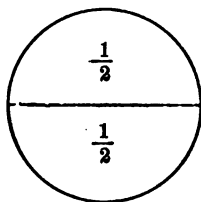 $\frac{1}{2}$ of 48 $\frac{3}{10}$ of 100 $\frac{7}{8}$ of 64

     $\frac{5}{9}$ of 27 $\frac{4}{9}$ of 36 $\frac{7}{10}$ of 20

80. Oral Exercises.

1. Compare the first circle with the third circle and answer these questions:

     $\frac{1}{2} = \frac{?}{8}$ $\frac{1}{2} + \frac{1}{8} = ?$ $\frac{2}{2} - \frac{1}{8} = ?$

     $1 - \frac{1}{8} = ?$ $\frac{1}{2} - \frac{1}{8} = ?$ $\frac{7}{8} - \frac{1}{2} = ?$

     $\frac{8}{8} = ?$ $\frac{2}{8} = ?$

2. Compare the second circle with the third circle and answer these questions:

     $\frac{1}{4} = \frac{?}{8}$ $\frac{1}{4} + \frac{1}{8} = ?$ $\frac{1}{4} - \frac{1}{8} = ?$

3. We have seen, by comparing the different circles, that

$\frac{2}{4} = \frac{1}{2},$ $\frac{2}{6} = \frac{1}{3},$ $\frac{4}{6} = \frac{2}{3},$ $\frac{3}{6} = \frac{1}{2},$ $\frac{4}{8} = \frac{1}{2},$ $\frac{2}{8} = \frac{1}{4}$

When we change $\frac{2}{4}$ to $\frac{1}{2}$, $\frac{2}{6}$ to $\frac{1}{3}$, $\frac{4}{8}$ to $\frac{1}{2}$, $\frac{2}{8}$ to $\frac{1}{4}$, we reduce these fractions to lowest terms.

$$\frac{2}{4} = \frac{2 \div 2}{4 \div 2} = \frac{1}{2} \qquad\qquad \frac{3}{6} = \frac{3 \div 3}{6 \div 3} = \frac{1}{2} \qquad\qquad \frac{4}{8} = \frac{4 \div 4}{8 \div 4} = \frac{1}{2}$$

· To reduce a fraction to lowest terms, *divide the numerator and the denominator by the same number.*

Reducing a fraction does not change the value of the fraction.

4. Reduce to lowest terms:

$$\frac{2}{6} \qquad \frac{4}{6} \qquad \frac{4}{8} \qquad \frac{6}{8} \qquad \frac{8}{8}$$

5. Change these improper fractions to whole or mixed numbers:

$$\frac{8}{6} \quad \frac{10}{8} \quad \frac{11}{6} \quad \frac{11}{8} \quad \frac{12}{6} \quad \frac{14}{8} \quad \frac{8}{8} \quad \frac{15}{8} \quad \frac{9}{8} \quad \frac{16}{8}$$

6. To add $\frac{1}{2}$ and $\frac{1}{4}$, we must first reduce $\frac{1}{2}$ to $\frac{2}{4}$. $\quad \frac{2}{4}+\frac{1}{4}=\frac{3}{4}$.

To add $\frac{1}{3}$ and $\frac{1}{6}$, we must first reduce $\frac{1}{3}$ to $\frac{2}{6}$. $\quad \frac{2}{6} + \frac{1}{6} = \frac{3}{6}$.

To add $\frac{1}{4}$ and $\frac{1}{8}$, we must first reduce $\frac{1}{4}$ to $\frac{2}{8}$. $\quad \frac{2}{8} + \frac{1}{8} = \frac{3}{8}$.

7. To subtract $\frac{1}{6}$ from $\frac{1}{3}$, we must first reduce $\frac{1}{3}$ to $\frac{2}{6}$.

$$\frac{2}{6} - \frac{1}{6} = \frac{1}{6}$$

To subtract $\frac{1}{8}$ from $\frac{1}{4}$, we must first reduce $\frac{1}{4}$ to $\frac{2}{8}$.

$$\frac{2}{8} - \frac{1}{8} = \frac{1}{8}$$

To add or subtract fractions that have different denominators, we must first *reduce them to fractions having a* **common denominator.**

8. Give answers at sight:

$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$2\frac{1}{2}$
$+1\frac{1}{8}$	$+1\frac{3}{8}$	$+1\frac{5}{8}$	$+1\frac{7}{8}$	$+1\frac{1}{8}$	$+1\frac{3}{8}$

9. Give answers rapidly:

$2\frac{1}{2}$	$3\frac{1}{2}$	$2\frac{1}{4}$	$3\frac{1}{2}$	6	9
$+2\frac{5}{8}$	$+2\frac{7}{8}$	$-1\frac{1}{8}$	$-1\frac{3}{8}$	$-3\frac{5}{8}$	$-5\frac{7}{8}$

81. Written Exercises.

Add:

1. $3\frac{1}{2}$
      $4\frac{1}{4}$
      $2\frac{1}{2}$

2. $7\frac{3}{4}$
      $8\frac{1}{2}$
      $9\frac{3}{8}$

3. $12\frac{3}{8}$
      $9\frac{1}{2}$
      $10\frac{1}{4}$

4. $16\frac{1}{4}$
      $18\frac{1}{2}$
      $7\frac{5}{8}$

5. $37\frac{1}{2}$
      $12\frac{7}{8}$
      $9\frac{1}{4}$

6. $28\frac{3}{4}$
      $19\frac{3}{8}$
      $21\frac{1}{2}$

7. $61\frac{1}{2}$
      $40\frac{5}{8}$
      $12\frac{3}{4}$

8. $19\frac{7}{8}$
      $21\frac{1}{2}$
      $37\frac{3}{4}$

Find remainders:

9. $29\frac{1}{4}$
    $- 14\frac{1}{8}$

10. $36\frac{1}{2}$
    $- 19\frac{1}{4}$

11. $57\frac{1}{2}$
    $- 18\frac{3}{8}$

12. $61\frac{3}{8}$
    $- 22\frac{1}{4}$

13. $73\frac{5}{8}$
    $- 54\frac{1}{4}$

14. $94\frac{5}{8}$
    $- 16\frac{1}{2}$

15. $42\frac{7}{8}$
    $- 19\frac{1}{4}$

16. $58\frac{7}{8}$
    $- 27\frac{3}{4}$

82. Oral Problems.

1. A farmer built $4\frac{1}{2}$ yd. of stone wall on Monday and $5\frac{1}{2}$ yd. on Tuesday. How much did he build in the two days?

2. If 3 packages of lemon drops cost $.15, what will 15 packages cost?

3. Find the cost of $1\frac{1}{2}$ lb. of beefsteak at $.24 per pound.

4. Jane has $1.15. How many pounds of grapes can she buy at $.09 per pound? How much change will she have left?

5. A teacher corrected 39 compositions on Friday and 48 on Saturday. How many did she correct on both days?

6. If $\frac{1}{2}$ lb. of butter costs $.18, how much will 2 lb. cost?

7. What must I pay for 6 packages of chocolate at $.15 per package?

8. Sidney saved $.89. His little sister saved $.35. How much more did Sidney save than his little sister?

9. What is the cost of a pound of tea at $.42 per pound and 3 pounds of sugar at $.06 per pound?

10. At the rate of 12 pages per day, in how many days will John read a book containing 132 pages?

83. Written Problems.

1. A dealer had 384 yd. of cloth which he made into dresses, using 16 yd. for each dress. He sold the dresses for $14 each. How much did he receive for them?

2. A man bought a lot of land for $2,155. On it he erected a house for $5,387. He sold the house and lot for $10,000. How much did he gain?

3. A merchant had $5,672.50 in the bank. He drew out $367.50, $298.25, and $897.16. How much did he have left in the bank?

4. Two boys start from the same point to travel on bicycles, in the same direction, one going $9\frac{1}{2}$ miles an hour and the other going 11 miles an hour. How far apart are they at the end of 6 hours?

5. If these boys in Ex. 4 started from the same point and went in opposite directions, how far apart would they be at the end of 6 hours?

6. If these boys started from points 189 miles apart and traveled towards each other, one going at the rate of $9\frac{1}{2}$ miles an hour, and the other going at the rate of $11\frac{1}{2}$ miles an hour, in how many hours would they meet?

7. 26 lb. of sugar cost $1.56. Find the cost of 45 lb. at the same price per pound.

8. How many dozen eggs at $.30 per dozen must be given in exchange for 90 yards of gingham at $.14 per yard?

9. A farmer had 90 tons of hay and sold $39\frac{1}{4}$ tons. How many tons are left?

10. A boy earns $6 a week and spends $4.75 a week. How much will he save in 52 weeks?

COUNTING; WRITING NUMBERS

84. Exercises.

1. Beginning with 3, count by 4's to 103.

2. Beginning with 3, count by 5's to 103.

3. Beginning with 53, count backwards by 4's.

4. Write in Roman numbers: 500, 499, 378, 267, 151, 982, 871, 770, 666, 1000.

ADDITION

85. Oral Exercises.

Give answers:

$.60	$.50	$.80	$.90	$.70
.80	.90	.80	.70	.60
.70	.40	.30	.90	.50

$.30	$.60	$.30	$.20	$.80
.90	.70	.90	.80	.70
.80	.90	.90	.90	.40

86. Written Exercises.

1.	$ 568.97	2.	23,564	3.	$395.45
	450.06		12,762		367.50
	217.84		28,451		151.98
	182.10		17,654		97.76
	156.52		20,896		184.75
	151.89		15,589		179.64
	1,188.76		24,619		89.67
	95.43		17,452		227.75
	79.67		14,728		169.50

4.	64,356	5.	75,467	6.	$406.50
	29,909		30,809		470.90
	81,075		92,186		205.89
	7,001		80,005		109.07
	68,863		79,974		284.00
	90,700		50,900		270.76
	26,486		27,597		98.65
	79,054		80,065		400.38
	30,807		40,908		170.43

7. Add: Thirty-four thousand six hundred seventy-five,
Twenty-three thousand eight hundred eighty-four,
Nineteen thousand five hundred sixty-two,
Twenty-nine thousand four hundred thirty-two,
Eighteen thousand nine hundred seventy-four,
Seventeen thousand three hundred sixty-seven,
Twenty thousand eight,
Fifteen thousand six hundred seventy-four,
Twelve thousand nine hundred thirty-nine.

8. Add : One hundred nine dollars and twenty-eight
cents,

Two hundred seventy-seven dollars and eighty-
five cents,

Three hundred nine dollars and nine cents,

Two hundred eighty-four dollars and seventy-
eight cents,

Two hundred ninety dollars and eighty-five
cents,

Three hundred five dollars and forty-three
cents,

Two hundred eighty-six dollars and seventy-
three cents,

Four hundred fifty-eight dollars and ninety-
four cents,

Five hundred sixty-six dollars and eighty-six
cents.

MULTIPLICATION

87. Oral Exercises.

1. Find products :

2×27	2×38	3×18	4×13	5×14	2×28
5×16	11×11	11×12	12×11	11×10	8×12

2. Multiply :

2 by 100	3 by 200	4 by 300
5 by 600	5 by 500	9 by 700
12 by 300	14 by 200	11 by 500

88. Written Exercises.

In one year an agent sold 300 sewing machines at $65 each. How much money did he receive?

65	65×0 units = 0. Write 0 under the first multiplying 0.
300	65×0 tens = 0. Write 0 under the second multiplying 0.
19500	65×3 hundreds = 195. Write 5 of 195 under 3, the multiplying figure. The answer is $19,500.

Find products:

1. 56×400 3. 83×500 5. $1,161 \times 307$ 7. 237×409

2. 75×600 4. 67×200 6. $\$4.87 \times 637$ 8. 253×90

DIVISION

89. Oral Exercises.

1. Supply the missing factors:

$2 \times ? = 46$ $? \times 33 = 66$

$? \times 3 = 96$ $2 \times ? = 96$

$4 \times ? = 88$ $? \times 30 = 60$

2. Give two factors of the following: 120, 132, 121, 99, 82, 84.

3. Divide at sight:

$\frac{123}{11}$ $\frac{65}{9}$ $\frac{90}{8}$ $\frac{73}{8}$ $\frac{125}{10}$ $\frac{124}{12}$ $\frac{44}{6}$ $\frac{65}{7}$

90. Written Exercises.

Find quotients and prove:

1. $905,145 \div 5$ 3. $567,354 \div 55$ 5. $68,202 \div 54$

2. $457,144 \div 76$ 4. $207,299 \div 53$ 6. $\$5,172.53 \div 59$

FRACTIONS

91. Oral Exercises.

1. Give answers:

$\frac{1}{2}$ of 34 $\frac{3}{5}$ of 45 $\frac{5}{6}$ of 42 $\frac{1}{7}$ of 140 $\frac{1}{4}$ of 100

$\frac{4}{5}$ of 15 $\frac{1}{6}$ of 126 $\frac{4}{7}$ of 49 $\frac{2}{8}$ of 72 $\frac{1}{3}$ of 42

2. Find:

$\frac{1}{5}$ of 80 $\frac{6}{7}$ of 21 $\frac{5}{8}$ of 56 $\frac{4}{5}$ of 45 $\frac{1}{2}$ of 36

$\frac{4}{7}$ of 14 $\frac{9}{10}$ of 10 $\frac{2}{3}$ of 45 $\frac{8}{9}$ of 9 $\frac{3}{5}$ of 10

92. Written Exercises.

In many of these examples, it will be necessary to write only the answers. If you find that the fractions are too difficult to be added at sight, arrange your work in this way:

$$
\begin{array}{c|c}
 & 6 \\
\hline
9\frac{5}{6} & 5 \\
3\frac{1}{3} & 2 \\
8\frac{1}{2} & 3 \\
\hline
21\frac{2}{3} & \frac{10}{6} = 1\frac{4}{6} = 1\frac{2}{3}
\end{array}
$$

Write the fractions in a column and draw lines as shown.

Above the top line write the common denominator. Reduce each fraction to a fraction whose denominator is 6, and write the new numerators below the common denominator 6. Add the new numerators, and below the bottom line write their sum, 10, above the common denominator.

$$\frac{10}{6} = 1\frac{4}{6} = 1\frac{2}{3}$$

Add the whole number 1 (from $1\frac{2}{3}$) to the whole numbers in the first column and write the sum, 21.

To the right of that sum, write $\frac{2}{3}$.

In many of the examples in subtraction, it will be necessary to write only the answers. When necessary, proceed as follows:

$$16\tfrac{5}{8} - 7\tfrac{1}{2} = ?$$

$$
\begin{array}{c|c}
 & 6 \\
16\tfrac{5}{8} & 5 \\
7\tfrac{1}{2} & 3 \\
\hline
9\tfrac{1}{3} & \tfrac{2}{6} = \tfrac{1}{3}
\end{array}
$$

Add:

1. $1\tfrac{1}{2}$ $1\tfrac{1}{2}$ $1\tfrac{1}{8}$
2. $1\tfrac{1}{2}$ $1\tfrac{1}{6}$ $1\tfrac{1}{8}$
3. $1\tfrac{1}{2}$ 1 $1\tfrac{5}{6}$
4. $2\tfrac{1}{2}$ $1\tfrac{1}{2}$ $1\tfrac{5}{8}$

5. $3\tfrac{1}{2}$ $2\tfrac{1}{6}$ $1\tfrac{5}{6}$ $4\tfrac{1}{8}$
6. $4\tfrac{5}{6}$ $2\tfrac{1}{2}$ $3\tfrac{1}{2}$ $1\tfrac{5}{6}$
7. $5\tfrac{1}{6}$ $3\tfrac{1}{2}$ $2\tfrac{5}{6}$ $4\tfrac{5}{6}$
8. $6\tfrac{1}{2}$ $2\tfrac{3}{4}$ $1\tfrac{3}{4}$ $5\tfrac{1}{4}$

9. $1\tfrac{1}{3}$ $1\tfrac{1}{3}$ $1\tfrac{1}{8}$
10. $1\tfrac{2}{3}$ $1\tfrac{1}{6}$ $1\tfrac{1}{8}$
11. $1\tfrac{2}{3}$ $1\tfrac{2}{3}$ $1\tfrac{1}{8}$
12. $2\tfrac{5}{6}$ $1\tfrac{1}{3}$ $1\tfrac{2}{3}$

13. $15\tfrac{1}{3}$ $2\tfrac{1}{2}$ 8
14. $1\tfrac{1}{3}$ $1\tfrac{1}{2}$ 9
15. $1\tfrac{1}{3}$ $1\tfrac{1}{2}$ $\tfrac{1}{6}$
16. $1\tfrac{1}{3}$ $1\tfrac{1}{2}$ $2\tfrac{1}{6}$

Subtract:

17. $28\tfrac{1}{2}$ $9\tfrac{1}{3}$
18. $33\tfrac{5}{6}$ $5\tfrac{1}{3}$
19. $25\tfrac{5}{6}$ $5\tfrac{1}{2}$
20. $40\tfrac{2}{3}$ $15\tfrac{1}{6}$

21. $71\tfrac{1}{3}$ $19\tfrac{1}{6}$
22. $83\tfrac{1}{2}$ $25\tfrac{1}{6}$
23. 57 $9\tfrac{5}{6}$
24. $33\tfrac{1}{6}$ 19

93. Written Problems.

1. I walked $9\frac{1}{4}$ miles in the morning, $6\frac{3}{4}$ miles in the afternoon, and 2 miles in the evening. How many miles did I walk that day?

2. The distance between two towns is $19\frac{2}{3}$ miles. Mr. Jones had gone $12\frac{1}{8}$ miles when his wagon broke down. How far did he still have to go?

3. From a piece of cloth containing $15\frac{7}{8}$ yd., a tailor made 3 coats. For the first coat he used $5\frac{1}{2}$ yd. For the second coat he used $5\frac{1}{4}$ yd. How many yards did he use for the third coat?

4. A room is $15\frac{1}{4}$ yd. long and $14\frac{1}{8}$ yd. wide. How many yards of picture molding will be needed for the four walls of the room?

5. Two young men started on a walking trip from New York to Albany, a distance of 141 miles. The first day they walked 25 miles; the second day $24\frac{1}{2}$ miles; the third day $25\frac{3}{8}$ miles; the fourth day $26\frac{1}{4}$ miles; and the fifth day 30 miles. They finished the trip on the sixth day. How many miles did they walk on the sixth day?

94. Oral Problems.

1. A boy rode his bicycle for $2\frac{2}{3}$ hours. He then traveled by train for $5\frac{1}{3}$ hours. How many hours did he travel in all?

2. A merchant sent 28 letters to his customers. The envelope and writing paper for each letter cost 1 cent. The postage for each letter was 2 cents. How much did these letters cost the merchant?

3. Find the cost of 1⅓ doz. bananas at $.27 per dozen.

4. If ½ lb. of chocolate costs $.20, what will 4 lb. cost?

5. A grocer charged $1.26 for 6 jars of jelly. How much did he charge per jar?

6. A teacher gives each of her pupils a new pen point every 2 weeks. In 6 weeks she gave her pupils 132 pen points. How many pupils has she?

7. What must I pay for 2 cans of cocoa at $.39 per can?

8. A bookseller had 93 books of fairy stories and sold 54. How many are left?

9. Find the cost of 1½ lb. of candy at $.28 per pound.

10. Mrs. Frank paid $7½ for a skirt and $4½ for a waist. How much did these two articles cost her?

AN AUTOMOBILE TRIP

95. Written Problems.

Mr. Wright, who lives in New York, went to Tennessee in his automobile to visit some friends.

1. The round trip was 1,800 miles and he made the journey in 14 days. How many miles did he average each day?

2. He used a gallon of gasoline every 20 miles and paid $.20 per gallon for it. How much did he spend for gasoline on the trip?

3. He paid for oil $.60 per gallon and he used a gallon of oil every 100 miles. How much did he spend for oil?

4. One day he made 169¼ miles on a stretch of good road. The next day on a stretch of bad road he made only 75½ miles. How much farther did he go on the stretch of good road than on the stretch of bad road?

5. His wife and her sister traveled with him, and for the seven days going south their hotel bills were $4.50 each per day. How much were their hotel bills for the trip south?

6. The first day of his journey he traveled 135½ miles, the second day 129¾ miles, and the third day 128⅜ miles. How far did he go in these 3 days?

7. Going south, he paid for engine repairs $3.25. On the return trip, he paid for engine repairs $4.65. He bought 2 new tires on the trip at $35 each. How much did he pay for tires and engine repairs?

8. The last day of the trip he traveled 150 miles. If he had traveled this distance every day, in how many days would he have made the journey of 1,800 miles?

EIGHTH WEEK

SUBTRACTION

96. Oral Exercises.

1. I bought an article for 79¢ and sold it at a loss of **12¢**. Find the selling price.

2. Cost 81¢	Loss 12¢	Selling price ?
3. Cost 62¢	Loss 14¢	Selling price ?
4. Cost 70¢	Loss 13¢	Selling price ?
5. Cost 51¢	Loss 15¢	Selling price ?
6. Cost 92¢	Loss 16¢	Selling price ?
7. Cost 83¢	Loss 14¢	Selling price ?
8. Cost 82¢	Loss 13¢	Selling price ?
9. Cost 90¢	Loss 18¢	Selling price ?
10. Cost 95¢	Loss 16¢	Selling price ?

97. Written Exercises.

1. $141,258 - (9,008 + 36,207 + 9,802 + 7,458) = ?$

2. $38,609 - (1,099 + 479 + 5,800 + 9,764) = ?$

3. From five thousand three hundred ninety-one dollars and sixty-three cents subtract two thousand four hundred seventy-two dollars and forty-four cents.

4. Name and supply the missing term :　　7,183
$$- \ 5,447$$
　　　　　　　　　　　　　　　　　　　　?

5. Find the missing term :　?$+ 119 = 856.$

6. $937.70　　　**7.** 587,600　　　**8.** 609,705
$$\underline{9.80}　　　　\underline{389}　　　　\underline{415,318}$$

9. From six hundred eighty-seven thousand two hundred four subtract three hundred four thousand one hundred fifty-five.

10. Name and supply the missing term :　　4,587
$$-　　　?$$
　　　　　　　　　　　　　　　　　　　1,693

MULTIPLICATION

98. Oral Exercises.

Find the cost of

  1. 48 apples at 2¢ each.

  2. 27 apples at 2¢ each.

  3. 45 apples at 2¢ each.

  4. 42 apples at 2¢ each.

  5. 12 lemons at 3¢ each.

  6. 19 lemons at 3¢ each.

  7. 17 oranges at 4¢ each.

  8. One dozen eggs at 5¢ each.

  9. 16 eggs at 5¢ each.

10. 8 lb. of soda crackers at 8¢ per pound.

11. 12 lb. of soda crackers at 8¢ per pound.

12. 8 lb. of ginger snaps at 7¢ per pound.

13. 12 lb. of ginger snaps at 7¢ per pound.

14. 9 heads of cabbage at 9¢ each.

15. 11 qt. of sweet potatoes at 10¢ per quart.

16. 11 pineapples at 12¢ each.

99. Written Exercises.

Find products:

1. 124×200	**5.** $\$3.78 \times 749$
2. 232×300	**6.** $257 \ \times 208$
3. 122×400	**7.** $187 \ \times 70$
4. 111×500	**8.** $6{,}934 \times 90$

DIVISION

100. Oral Exercises.

1. Supply the missing multiples:

$? \div 2 = 36$	$? \div 14 = 3$	$? \div 2 = 26$
$? \div 16 = 4$	$? \div 8 = 8$	$? \div 18 = 2$

2. Divide at sight:

9)75	9)67	8)71	12)80	7)68	6)75
8)70	8)77	8)31	7)41	6)39	5)64

101. Written Exercises.

Find quotients and prove:

1. $563{,}808 \div 73$	**3.** $157{,}853 \div 43$	**5.** $985{,}675 \div 95$
2. $793{,}243 \div 68$	**4.** $177{,}496 \div 22$	**6.** $271{,}830 \div 78$

FRACTIONS

102. Oral Exercises.

1. Give answers :

$\frac{10}{11}$ of 44	$\frac{1}{12}$ of 96	$\frac{5}{8}$ of 64	$\frac{3}{7}$ of 63	$\frac{8}{9}$ of 45
$\frac{7}{8}$ of 88	$\frac{2}{9}$ of 108	$\frac{3}{5}$ of 55	$\frac{1}{4}$ of 56	$\frac{1}{3}$ of 42

2. Find :

$\frac{1}{2}$ of 46	$\frac{1}{11}$ of 121	$\frac{2}{9}$ of 99	$\frac{7}{12}$ of 12	$\frac{9}{7}$ of 70
$\frac{1}{5}$ of 105	$\frac{5}{12}$ of 48	$\frac{4}{9}$ of 90	$\frac{5}{12}$ of 24	$\frac{5}{9}$ of 81

103. Oral Exercises.

1. If anything is divided into five equal parts, what is each part called?

2. If anything is divided into ten equal parts, what is each part called?

$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$

$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$

$\frac{1}{2}$	$\frac{1}{2}$

3. $\frac{1}{5} = \frac{?}{10}$ $\frac{2}{5} = \frac{?}{10}$ $\frac{3}{5} = \frac{?}{10}$ $\frac{4}{5} = \frac{?}{10}$

4. $\frac{5}{5} = \frac{?}{10}$ $2 = \frac{?}{5}$ $\frac{1}{2} = \frac{?}{10}$ $\frac{10}{10} = \frac{?}{2}$

5. In $\frac{9}{10}$, what does the 10 show?   What is it called?

6. In $\frac{9}{10}$, what does the 9 show?   What is it called?

We have seen that $\frac{1}{2} = \frac{2}{4}$, $\frac{1}{3} = \frac{2}{6}$, $\frac{1}{4} = \frac{2}{8}$, etc.

To change $\frac{1}{2}$ to higher terms, we multiply the numerator and the denominator by 2, 3, or some other number.

$$\frac{1}{2} = \frac{1 \times 2}{2 \times 2} = \frac{2}{4} \qquad \frac{1}{2} = \frac{1 \times 3}{2 \times 3} = \frac{3}{6}$$

To change a fraction to higher terms, *multiply the numerator and the denominator by the same number.*

Multiplying the numerator and the denominator by the same number does not change the value of the fraction.

7. Change to eighths: $\frac{1}{2}$ $\frac{1}{4}$ $\frac{2}{4}$ $\frac{3}{4}$ $\frac{2}{2}$ $\frac{4}{4}$

8. Change to tenths: $\frac{1}{2}$ $\frac{1}{5}$ $\frac{3}{5}$ $\frac{4}{5}$ $\frac{2}{2}$ $\frac{5}{5}$

9. Change to a whole or a mixed number:

$$\frac{8}{8} \qquad \frac{7}{5} \qquad \frac{11}{10} \qquad \frac{11}{8} \qquad \frac{8}{5} \qquad \frac{15}{10}$$

10. Give answers at sight:

$\frac{1}{5}$	$\frac{2}{5}$	$1\frac{4}{5}$	$2\frac{3}{5}$
$+ \frac{1}{10}$	$+ \frac{3}{10}$	$+ 2\frac{3}{10}$	$+ 4\frac{1}{10}$

$1\frac{1}{2}$	$5\frac{1}{2}$	$4\frac{3}{5}$	$1\frac{1}{2}$
$+ 5\frac{1}{10}$	$+ 3\frac{7}{10}$	$+ 1\frac{7}{10}$	$+ 1\frac{1}{5}$

11. Subtract rapidly:

$\frac{1}{5}$	$\frac{7}{10}$	$\frac{3}{5}$	$\frac{4}{5}$
$- \frac{1}{10}$	$- \frac{2}{5}$	$- \frac{2}{10}$	$- \frac{7}{10}$

$\frac{1}{2}$	$\frac{1}{2}$	$\frac{9}{10}$	1
$- \frac{1}{5}$	$- \frac{3}{10}$	$- \frac{1}{5}$	$- \frac{4}{5}$

$\frac{3}{10}$	$\frac{2}{5}$	$\frac{9}{10}$	$\frac{7}{10}$
$- \frac{1}{5}$	$- \frac{1}{10}$	$- \frac{1}{2}$	$- \frac{1}{2}$

104. Written Exercises.

Add:

1. $15\frac{1}{2}$
$12\frac{1}{5}$
$9\frac{1}{10}$

2. $23\frac{2}{5}$
$16\frac{1}{10}$
$22\frac{1}{2}$

3. $51\frac{1}{10}$
$12\frac{3}{5}$
$31\frac{1}{2}$

4. $44\frac{1}{2}$
$5\frac{4}{5}$
$17\frac{1}{10}$

5. $33\frac{3}{10}$
$14\frac{1}{5}$
$11\frac{1}{2}$

6. $14\frac{2}{5}$
$60\frac{3}{10}$
$14\frac{1}{2}$

7. $77\frac{1}{2}$
$5\frac{4}{5}$
$9\frac{3}{10}$

8. $55\frac{7}{10}$
$\frac{1}{5}$
$5\frac{1}{2}$

9. $22\frac{1}{2}$
$37\frac{2}{5}$
$25\frac{7}{10}$

10. $11\frac{3}{5}$
$47\frac{1}{2}$
$25\frac{7}{10}$

11. $88\frac{7}{10}$
$9\frac{4}{5}$
$\frac{1}{2}$

12. $99\frac{1}{2}$
$16\frac{9}{10}$
$12\frac{1}{5}$

13. $33\frac{9}{10}$
$45\frac{2}{5}$
$16\frac{1}{2}$

14. $27\frac{3}{5}$
$17\frac{1}{2}$
$8\frac{9}{10}$

15. $66\frac{9}{10}$
$18\frac{4}{5}$
$11\frac{1}{2}$

16. $75\frac{7}{10}$
$24\frac{1}{2}$
$16\frac{3}{5}$

Find remainders:

17. $85\frac{7}{10}$
$-16\frac{1}{2}$

18. $43\frac{1}{5}$
$-19\frac{1}{10}$

19. $60\frac{9}{10}$
$-51\frac{1}{2}$

20. $33\frac{7}{10}$
$-16\frac{2}{5}$

21. $91\frac{2}{5}$
$-17\frac{1}{10}$

22. $21\frac{3}{5}$
$-18\frac{2}{10}$

23. $43\frac{3}{10}$
$-24\frac{1}{5}$

24. $91\frac{4}{5}$
$-19\frac{7}{10}$

25. 100
$-35\frac{4}{5}$

26. $37\frac{1}{2}$
$-18\frac{1}{5}$

27. $112\frac{9}{10}$
$-85\frac{1}{5}$

28. $161\frac{1}{2}$
$-142\frac{3}{10}$

MEASUREMENT

105. Oral Exercises.
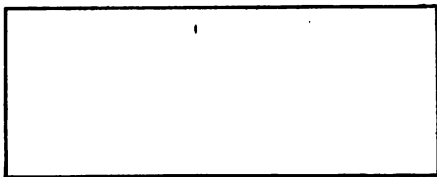
1. Draw a figure having four sides and four square corners. This figure is a **rectangle**.

2. Draw a rectangle whose four sides are each 2 inches long. When the four sides of a rectangle are equal, the figure is **a square**.

3. If one side of a square is 3 inches long, how long are the other sides?

4. If the upper side of a square is 5 inches long, how long are the other sides?

5. Draw a square whose four sides are each 1 inch long. This is a **square inch**.
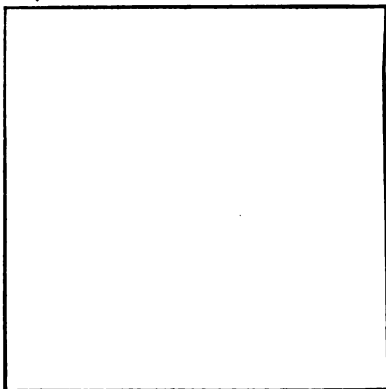
6. Draw a rectangle 3 inches long and 1 inch wide. How many square inches are there in this rectangle?
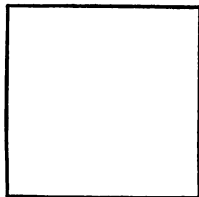
7. Draw a rectangle 3 inches long and 3 inches wide. Divide it into square inches.

How many square inches are there in the top row?

How many rows of square inches?

How many square inches in this rectangle?

8. Draw a rectangle 2 inches long and 3 inches wide. Divide it into square inches.

How many square inches in the top row?

How many rows of square inches?

How many square inches in this rectangle?

9. If a rectangle has 5 square inches in a row and 3 such rows, how many square inches does it contain?

10. If a rectangle has 4 square inches in a row and 4 such rows, how many square inches does it contain?

11. How many square inches are there in a rectangle 6 inches long and 2 inches wide?

12. The **area** of a rectangle is measured by the number of square inches in its surface.

What is the area of a rectangle 8 inches long and 2 inches wide?

To find the area of a rectangle, we *multiply the number of inches in the length of a rectangle by the number of inches in its width.*

13. The cover of a book is 6 inches long and 4 inches wide. How many square inches in the cover of the book?

14. A sheet of paper contains 35 square inches. Its breadth is 5 inches. What is its length?

15. The area of a rectangle is 8 square inches. Its length is 4 inches. What is the width or breadth?

16. The area of a rectangle is 6 square inches. Its width is 2 inches. What is its length?

17. The area of a rectangle is 7 square inches. Its length is 7 inches. What is its width or breadth?

106. Oral Problems.

1. If 2 packages of washing powder cost $.28, what will 6 packages cost?

2. George picked 3¼ quarts of berries. His sister picked 4¾ quarts. How many quarts did they both pick?

3. Sarah spent $.67 at the grocer's and $.37 at the baker's. How much did she spend at both stores?

4. How many nickels are there in $.70?

5. Find the cost of 1½ lb. of lamb chops at $.22 per pound.

6. What will 18 packages of peppermints cost at $.05 per package?

7. Our groceryman bought 85 watermelons and sold 69 of them in one day. How many were left at the end of the day?

8. After buying 2 pounds of candy at $.30 per pound, Charles had $.29 left. How much money did he have at first?

9. A farmer's wife sold 2 lb. of butter at $.30 per pound. With the money she bought ribbon at $.12 per yard. How many yards of ribbon did she buy?

10. A peddler had 63 bananas and sold ⅝ of them. How many did he sell?

107. Written Problems.

1. A man earned $19 a week and spent $16 a week. How much did he save in 52 weeks?

2. A fortune of $153,816 was divided equally among 6 children. How much did each child receive?

3. Mr. Jones lent the following amounts: $4,767.35, $1,963.32, $879.48, and $1,267.50. He then had $5,254.75. How much did he have at first?

4. A woman bought 26 yd. of muslin at $.17 a yard. How much change should she receive from a $10 bill?

5. A man earned $216 and spent $\frac{7}{8}$ of it. How much did he spend?

6. What is the cost of 3$\frac{1}{5}$ yd. of cloth at $.75 per yard?

7. In one week a man earned 16\frac{1}{2}$ and his son earned 9\frac{3}{4}$. How much did both earn that week?

8. Mother used 25$\frac{1}{4}$ yd. of carpet for one room and 18$\frac{1}{2}$ yd. of carpet for another room. How many yards did she use for both rooms?

9. A peddler bought 75 caps for $22.50. He sold them for $.35 each. What was his profit?

10. A farmer planted wheat on $\frac{3}{7}$ of his farm of 364 acres. How many acres of wheat did he plant?

NINTH WEEK

COUNTING; WRITING NUMBERS

108. Exercises.

1. Beginning with 5, count by 8's to 101.

2. Beginning with 5, count by 9's to 104.

3. Beginning with 98, count backwards by 9's.

4. Write in Roman numbers: 253, 367, 486, 500, 972, 149, 863, 754, 642, 1,000.

ADDITION

109. Oral Exercises.

1. Give answers:

21¢ + 48¢	21¢ + 39¢	59¢ + 75¢	75¢ + 93¢
93¢ + 91¢	39¢ + 57¢	49¢ + 66¢	60¢ + 84¢
84¢ + 92¢	92¢ + 90¢	27¢ + 54¢	37¢ + 58¢

2. Give answers:

38¢ + 47¢	51¢ + 29¢	59¢ + 41¢	39¢ + 62¢
41¢ + 71¢	53¢ + 82¢	29¢ + 91¢	41¢ + 95¢
77¢ + 27¢	66¢ + 81¢	28¢ + 48¢	37¢ + 47¢

110. Written Exercises.

1. 79,392		**2.** $820.78		**3.** $489.60	
50,087		704.67		809.05	
63,009		620.29		571.00	
49,805		457.30		757.70	
68,760		909.57		750.89	
75,547		567.55		39.66	
53,600		18.68		980.07	
65,978		709.78		594.23	
77,324		287.05		487.54	

4. 88,281		**5.** $337.09		**6.** 75,309	
60,198		89.57		69,087	
74,010		340.48		78,900	
58,704		427.56		60,854	
79,870		93.95		73,328	
86,658		397.97		89,099	
63,500		109.60		77,370	
75,089		260.93		80,426	
66,213		356.45		71,127	

7. Add : Sixty-six thousand two hundred thirteen,
　　　　Fifty-four thousand eight hundred sixty-seven,
　　　　Forty-two thousand five hundred,
　　　　Sixty-four thousand four hundred thirty-six,
　　　　Seventy-nine thousand eight hundred seven,
　　　　Fifty thousand nine hundred fifty,
　　　　Sixty-four thousand ten,
　　　　Sixty thousand ninety-eight,
　　　　Eighty thousand four hundred three.

8. Add : Eight hundred eighty-five dollars and eighty cents,
Two hundred forty-three dollars and nine cents,
Six hundred fifty dollars and seventy-three cents,
Two hundred eighty-seven dollars and ninety-nine cents,
Sixty-one dollars and fifty-six cents,
Four hundred ninety-three dollars and eighty-seven cents,
Seven hundred three dollars and nine cents,
Three hundred thirty-three dollars and eighty cents,
Eight hundred dollars and fifty-five cents.

MULTIPLICATION

111. Oral Exercises.

At 3 cents each, how much will 33 pears cost? 32 pears? 18 pears? 26 pears? 27 pears? 19 pears? 24 pears? 29 pears? 17 pears? 15 pears?

112. Written Exercises.

Find products :

1. 212×200	**3.** 323×300	**5.** $\$2.98 \times 359$
2. 195×407	**4.** 453×209	**6.** 346×90

DIVISION

113. Oral Exercises.

1. Supply the missing factors :

$? \times 2 = 54$	$3 \times ? = 54$	$5 \times ? = 70$
$2 \times ? = 76$	$? \times 13 = 52$	$? \times 6 = 90$

2. Give two factors of the following : 96, 110, 132, 52, 121, 56, 144, 72, 42, 36, 54.

3. Divide at sight :

| 12)960 | 10)150 | 11)1100 | 8)240 |

| 9)810 | 5)400 | 11)220 | 5)1000 |

| 6)1200 | 11)440 | 8)1600 | 9)1800 |

114. Written Exercises.

Find quotients and prove :

| 1. 45,688 ÷ 8 | 3.   24,442 ÷ 121 | 5. 593,298 ÷ 421 |
| 2. 732,869 ÷ 710 | 4. $3,998.12 ÷ 763 | 6. 763,435 ÷ 179 |

FRACTIONS

115. Oral Exercises.

1. Give answers :

| $\frac{1}{2}$ of 38 | $\frac{3}{4}$ of 44 | $\frac{1}{5}$ of 90 | $\frac{3}{7}$ of 56 | $\frac{3}{8}$ of 80 |
| $\frac{1}{3}$ of 63 | $\frac{4}{5}$ of 50 | $\frac{5}{6}$ of 36 | $\frac{4}{9}$ of 81 | $\frac{1}{2}$ of 42 |

2. Find :

| $\frac{9}{11}$ of 77 | $\frac{5}{12}$ of 72 | $\frac{7}{12}$ of 60 | $\frac{8}{9}$ of 18 | $\frac{1}{2}$ of 66 |
| $\frac{7}{9}$ of 72 | $\frac{1}{12}$ of 36 | $\frac{8}{9}$ of 63 | $\frac{2}{11}$ of 88 | $\frac{9}{10}$ of 50 |

116. Oral Exercises.

| $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ | $\frac{1}{12}$ |

| $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ |

| $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ | $\frac{1}{4}$ |

| $\frac{1}{3}$ | $\frac{1}{3}$ | $\frac{1}{3}$ |

| $\frac{1}{2}$ | $\frac{1}{2}$ |

1. Into how many equal parts is the first rectangle divided? What is each part called? How is it written?

2. Into how many equal parts is the second rectangle divided? What is each part called? How is it written?

3. Compare the second rectangle with the first and answer the following:

$$\frac{6}{6} = \frac{?}{12} \qquad \frac{1}{6} = \frac{?}{12} \qquad \frac{2}{6} = \frac{?}{12} \qquad \frac{3}{6} = \frac{?}{12} \qquad \frac{4}{6} = \frac{?}{12}$$

$$\frac{2}{12} = \frac{?}{6} \qquad \frac{4}{12} = \frac{?}{6} \qquad \frac{6}{12} = \frac{?}{6} \qquad \frac{8}{12} = \frac{?}{6} \qquad \frac{10}{12} = \frac{?}{6}$$

4. Compare the third rectangle with the first and answer the following:

$$\frac{4}{4} = \frac{?}{12} \qquad \frac{1}{4} = \frac{?}{12} \qquad \frac{2}{4} = \frac{?}{12} \qquad \frac{3}{4} = \frac{?}{12}$$

$$\frac{6}{12} = \frac{?}{4} \qquad \frac{9}{12} = \frac{?}{4} \qquad \frac{3}{12} = \frac{?}{4} \qquad \frac{12}{12} = \frac{?}{4}$$

5. Compare the fourth rectangle with the first and answer the following:

$$\frac{3}{3} = \frac{?}{12} \qquad\qquad \frac{1}{3} = \frac{?}{12} \qquad\qquad \frac{2}{3} = \frac{?}{12}$$

$$\frac{12}{12} = \frac{?}{3} \qquad\qquad \frac{8}{12} = \frac{?}{3} \qquad\qquad \frac{4}{12} = \frac{?}{3}$$

117. Oral Exercises.

1. Give answers:

$\frac{3}{3} = \frac{?}{6}$ $\frac{1}{3} = \frac{?}{6}$ $\frac{2}{3} = \frac{?}{6}$ $\frac{6}{6} = \frac{?}{3}$

$\frac{4}{6} = \frac{?}{3}$ $\frac{2}{6} = \frac{?}{3}$ $\frac{2}{2} = \frac{?}{6}$ $\frac{1}{2} = \frac{?}{6}$

$\frac{1}{2} = \frac{?}{12}$ $\frac{4}{4} = \frac{?}{6}$ $\frac{2}{2} = \frac{?}{12}$ $\frac{2}{2} = \frac{?!}{3}$

$\frac{5}{6} = \frac{?}{12}$ $1 = \frac{?}{12}$ $1\frac{2}{2} = \frac{?}{2}$ $\frac{3}{3} = \frac{?}{4}$

2. Add at sight:

$\frac{1}{6} + \frac{1}{12}$ $\frac{1}{4} + \frac{1}{12}$ $\frac{1}{3} + \frac{1}{12}$ $\frac{1}{2} + \frac{1}{12}$

$\frac{1}{3} + \frac{1}{6}$ $\frac{1}{2} + \frac{1}{6}$ $\frac{1}{6} + \frac{5}{12}$ $\frac{1}{4} + \frac{5}{12}$

$\frac{1}{3} + \frac{5}{12}$ $\frac{1}{2} + \frac{5}{12}$ $\frac{1}{3} + \frac{5}{6}$ $\frac{2}{3} + \frac{5}{6}$

3. Add rapidly:

$\frac{1}{2} + \frac{5}{6}$ $\frac{1}{6} + \frac{7}{12}$ $\frac{1}{4} + \frac{7}{12}$ $\frac{1}{3} + \frac{7}{12}$

$\frac{1}{2} + \frac{7}{12}$ $\frac{1}{6} + \frac{11}{12}$ $\frac{1}{4} + \frac{11}{12}$ $\frac{1}{3} + \frac{11}{12}$

4. Subtract at sight:

$\frac{1}{2} - \frac{1}{12}$ $\frac{1}{3} - \frac{1}{12}$ $\frac{1}{4} - \frac{1}{12}$ $\frac{1}{6} - \frac{1}{12}$ $\frac{2}{3} - \frac{7}{12}\frac{3}{4}$ $- \frac{7}{12}$

$\frac{5}{6} - \frac{7}{12}$ $\frac{5}{12} - \frac{1}{6}$ $\frac{7}{12} - \frac{1}{4}$ $1\frac{1}{2} - \frac{1}{3}$ $1\frac{1}{2} - \frac{1}{2}$ $\frac{3}{4} - \frac{5}{12}$

118. Written Exercises.

Add:

1.	2.	3.	4.
$17\frac{1}{4}$	$21\frac{1}{2}$	$16\frac{2}{3}$	$9\frac{1}{12}$
$11\frac{1}{2}$	$32\frac{3}{4}$	$14\frac{1}{4}$	$16\frac{2}{3}$
$12\frac{1}{3}$	$40\frac{1}{3}$	$22\frac{1}{2}$	$24\frac{3}{4}$
$8\frac{1}{12}$	$19\frac{1}{12}$	$63\frac{1}{12}$	$12\frac{1}{2}$

Subtract:

5. $30\frac{11}{12}$	6. $31\frac{7}{12}$	7. $45\frac{5}{12}$	8. $63\frac{1}{6}$
$15\frac{1}{2}$	$16\frac{1}{4}$	$34\frac{1}{3}$	$44\frac{1}{12}$

MEASUREMENT

119. Oral Exercises.

1. What is the area of a pane of glass 6 in. long and **9 in.** wide?

2. A sheet of paper contains 20 square inches (sq. **in.**). Its length is 5 in. What is its width?

3. The cover of a Geography contains 80 sq. in. Its length is 10 in. What is its width?

When a rectangle is 7 in. long and 8 in. wide, we sometimes say it is "7 in. by 8 in."

Find the areas of the following rectangles:

4. 7 in. by 8 in.   6. 6 in. by 9 in.   8. 12 in. by **9 in.**
5. 9 in. by 5 in.   7. 11 in. by 12 in.   9. 11 in. by **10 in.**

Find the width of the following rectangles:

10. Length 9 in.; area 63 sq. in.

11. Area 36 sq. in.; length 3 in.

Find the length of the following rectangles:

12. Area 72 sq. in.; width 8 in.

13. Width 9 in.; area 108 sq. in.

14. Area 110 sq. in.; width 10 in.

120. Oral Problems.

1. Mary walked $2\frac{1}{3}$ miles in the morning and $3\frac{1}{8}$ miles in the afternoon. How many miles did she walk that day?

2. What must I pay for $1\frac{1}{4}$ lb. of tea at $.44 per pound?

3. If 2 lb. of cheese cost $.48, what will 4 lb. cost?

4. Mother paid $.75 for a lamb's tongue and $.36 for lamb chops. How much did she pay for both?

5. Sarah's aunt had a piece of lace $4\frac{5}{12}$ yd. long. She gave Sarah $2\frac{1}{3}$ yd. with which to trim a waist. How many yards were left in the piece?

6. George's mother gave him 96 words to spell. He made 17 mistakes. How many words did he spell correctly?

7. A mother divided $.96 equally among her 3 girls. How much did each receive?

8. A farmer sold $\frac{1}{4}$ of his farm at one time and $\frac{1}{12}$ of it at another time. How much did he sell?

9. 72 hours make how many days?

10. Father paid the laundryman $.72 for shirts and $.46 for collars. How much did he pay for both?

121. Written Problems.

1. In different pockets in a coal yard there are the following numbers of tons of coal: 3,788, 892, 1,632, 597, 2,155, 1,999, 857. How many tons of coal are there in the yard?

2. A man bought a farm for $7,867.50. He built a house for $4,359.75 and a barn for $1,652.35. He sold everything for $16,550. How much did he gain?

3. In 5 days, a dealer sold 228 straw hats at $1.25 each. How much money did he average per day?

4. How much is saved by buying at once a dozen tins of cocoa for $3.75 instead of buying a dozen, one at a time, at $.32 each?

5. A bicycle rider traveled on his wheel from New York to Chicago, a distance of 900 miles. He averaged 75 miles per day. How long did it take him to make the journey?

6. Find the cost of $1\frac{1}{2}$ doz. pinks at $.84 per dozen.

7. Thomas Brown is digging a trench 60 ft. long. He has finished $22\frac{3}{10}$ ft. of it. How many more feet must he dig?

8. In her work basket, Mary has 3 pieces of ribbon. One is $5\frac{5}{12}$ yd. long, another is $4\frac{2}{3}$ yd. long, and the third is $3\frac{2}{3}$ yd. long. How many yards has she in all?

9. Charles spent $15\frac{3}{4}$ for a suit of clothes, $1\frac{1}{4}$ for a shirt, and $3\frac{1}{2}$ for a pair of shoes. How much did he spend?

10. A graduating class of girls had a picnic. They bought 5 gal. of ice cream at $.60 a gallon; 8 lb. of cake at $.45 a pound; 5 lb. of candy at $.35 a pound. For other things they spent $3.50. How much did they spend for the picnic?

TENTH WEEK

READING NUMBERS; COUNTING

122. Oral Exercises.

1. Read: CMLXVIII CXXXVII CCIX CCCXXIII
   CDXLVI DCCCLIX DCCL DCXXXVIII M

2. Beginning with 6, count by 8's to 102.

3. Beginning with 6, count by 9's to 105.

4. Beginning with 75, count backwards by 7's.

SUBTRACTION

123. Oral Exercises.

Give answers:

36 + 20 − 7	52 + 30 − 4	35 + 30 − 9
71 + 20 − 6	47 + 30 − 8	34 + 30 − 7
53 + 20 − 8	81 + 10 − 2	36 + 30 − 8
42 + 20 − 3	82 + 10 − 5	36 + 30 − 7

124. Written Exercises.

1. $1,863.49
   −   7.97

2. 465,938
   − 78,354

3. The minuend is six hundred ninety-five thousand three hundred eighty-two, and the subtrahend is five hundred thousand one hundred ninety-four. What is the remainder?

4. Name and supply the missing term :   9,007
                                          $-$ 6,364

5. Find the missing term : 732 + ? = 911

6.   789,500
     $-$ 625,376

7. 39,786 $-$ (9,654 + 5,409 + 7,056 + 8,954) = ?

8. From eight thousand three hundred fifty dollars **and** six cents take one thousand four hundred twenty-five **dollars** and fifty-one cents.

MULTIPLICATION

125. Oral Exercises.

1. Find products :

2 $\times$ 19   2 $\times$ 29   3 $\times$ 28   3 $\times$ 29   4 $\times$ 18   4 $\times$ 24

2. Give answers :

5 $\times$ 17   5 $\times$ 19   7 $\times$ 7   12 $\times$ 6   11 $\times$ 11   10 $\times$ 11

3. Review the multiplication tables of sevens, nines, **and** twelves.

126. Written Exercises.

Find products :

1.	978 $\times$ 600	**5.**	491 $\times$ 80
2.	542 $\times$ 400	**6.**	$1.75 $\times$ 964
3.	$5.75 $\times$ 769	**7.**	286 $\times$ 406
4.	843 $\times$ 900	**8.**	1,967 $\times$ 305

DIVISION

127. Oral Exercises.

1. Supply the missing factors and multiples:

$$? \times 2 = 96 \qquad ? \div 2 = 42$$
$$? \div 3 = 19 \qquad ? \times 2 = 90$$
$$? \times 4 = 68 \qquad ? \div 16 = 5$$

2. Give answers:

$47 \div 6 \quad 64 \div 5 \quad 59 \div 7 \quad 60 \div 9 \quad 111 \div 10 \quad 48 \div 7$

3. Divide:

$57 \div 9 \quad 76 \div 6 \quad 85 \div 7 \quad 79 \div 12 \quad 39 \div 12 \quad 80 \div 7$

128. Written Exercises.

Find quotients and prove:

1. $68,544 \div 12$ **3.** $856,445 \div 641$ **5.** $967,435 \div 823$

2. $503,074 \div 126$ **4.** $\$5,514.45 \div 97$ **6.** $\$4,885 \div 754$

FRACTIONS

129. Oral Exercises.

1. Give answers:

$\frac{2}{11}$ of 121 $\frac{11}{12}$ of 48 $\frac{4}{11}$ of 99 $\frac{8}{9}$ of 81 $\frac{7}{8}$ of 56

$\frac{7}{11}$ of 77 $\frac{3}{10}$ of 70 $\frac{7}{12}$ of 84 $\frac{1}{11}$ of 132 $\frac{4}{9}$ of 63

2. Find:

$\frac{10}{11}$ of 55 $\frac{8}{9}$ of 72 $\frac{5}{9}$ of 45 $\frac{11}{12}$ of 60 $\frac{5}{8}$ of 88

$\frac{4}{9}$ of 27 $\frac{1}{12}$ of 48 $\frac{2}{9}$ of 18 $\frac{5}{12}$ of 36 $\frac{1}{9}$ of 81

130. Written Exercises.

Add:

1. $12\frac{1}{6}$
   $35\frac{1}{2}$
   $41\frac{1}{3}$
   $6\frac{1}{12}$

2. $15\frac{2}{3}$
   $51\frac{1}{2}$
   $9\frac{1}{6}$
   $14\frac{1}{12}$

3. $9\frac{5}{12}$
   $7\frac{1}{4}$
   $6\frac{1}{3}$
   $11\frac{1}{2}$

4. $32\frac{3}{4}$
   $22\frac{5}{12}$
   $17\frac{1}{2}$
   $7\frac{1}{3}$

5. $30\frac{1}{2}$
   $41\frac{2}{3}$
   $56\frac{3}{4}$
   $18\frac{5}{12}$

6. $12\frac{1}{6}$
   $40\frac{5}{12}$
   $32\frac{1}{3}$
   $9\frac{1}{2}$

7. $91\frac{2}{3}$
   $17\frac{1}{6}$
   $18\frac{5}{12}$
   $12\frac{1}{2}$

8. $37\frac{5}{6}$
   $25\frac{7}{12}$
   $16\frac{1}{2}$
   $4\frac{1}{3}$

9. $5\frac{7}{12}$
   $92\frac{3}{4}$
   $16\frac{2}{3}$
   $3\frac{1}{2}$

10. $19\frac{7}{12}$
    $18\frac{1}{2}$
    $26\frac{1}{4}$
    $33\frac{1}{3}$

11. $81\frac{7}{12}$
    $9\frac{2}{3}$
    $24\frac{1}{2}$
    $8\frac{5}{6}$

12. $63\frac{11}{12}$
    $\frac{3}{4}$
    $17\frac{2}{3}$
    $9\frac{1}{2}$

13. $63\frac{3}{4}$
    $42\frac{1}{3}$
    $19\frac{7}{12}$
    $8\frac{1}{2}$

14. $\frac{2}{3}$
    $2\frac{1}{2}$
    $\frac{5}{6}$
    $99\frac{5}{12}$

15. $81\frac{1}{2}$
    $17\frac{2}{3}$
    $16\frac{3}{4}$
    $22\frac{7}{12}$

16. $77\frac{5}{6}$
    $\frac{11}{12}$
    $7\frac{2}{3}$
    $\frac{1}{2}$

Subtract:

17. $97\frac{5}{6}$
    $28\frac{2}{3}$

18. $65\frac{5}{6}$
    $17\frac{7}{12}$

19. $43\frac{1}{4}$
    $25\frac{1}{12}$

20. $99\frac{2}{3}$
    $39\frac{7}{12}$

21. $74\frac{3}{4}$
    $28\frac{5}{12}$

22. $45\frac{1}{2}$
    $36\frac{1}{12}$

23. $73\frac{1}{3}$
    $29\frac{1}{12}$

24. $81\frac{11}{12}$
    $26\frac{1}{3}$

MEASUREMENT

131. Oral Exercises.

1. A rectangle is 2 in. long and 1 in. wide. How many inches are there around the 4 sides of the rectangle?

The distance around a figure is called its **perimeter**.
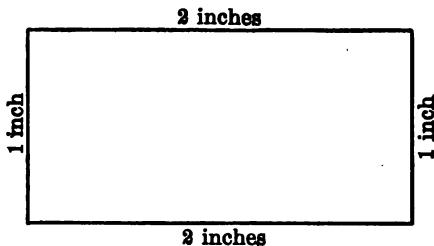
The perimeter of this figure is 6 inches.

2. What is the perimeter of a rectangle 9 in. long and 2 in. wide?

3. What is the perimeter of a square, one of whose sides is 4 in. long?

4. The perimeter of a rectangle is 24 in. Its length is 8 in. What is its breadth?

Find the perimeters of the following rectangles:

5. 9 in. long and 3 in. wide.

6. 8 in. long and 5 in. wide.

7. 10 in. long and 7 in. wide.

8. 6 in. long and 9 in. wide.

9. 11 in. long and 4 in. wide.

Find the width of the following rectangles:

10. Perimeter 20 in.; length 6 in.

11. Perimeter 14 in.; length 4 in.

12. Perimeter 16 in.; length 6 in.

Find the length of the following rectangles:

13. Perimeter 12 in.; width 1 in.

14. Perimeter 8 in.; width 2 in.

132. Oral Problems.

1. If 2 packages of flour cost $.34, what will 4 packages cost?

2. What must I pay for 1½ lb. of coffee at $.30 per pound?

3. A newsboy made $.57 on Friday and $.64 on Saturday. How much did he make on the two days?

4. A baker cut a cake into 6 equal pieces. He sold 2 of them for 14 cents. At that rate, for how much would he sell the whole cake?

5. Robert spent ⅙ of his money for a bat, ⅓ of his money for a ball, and ½ of his money for a baseball glove. How much of his money did he spend?

6. At $.38 per pound, how much must I pay for 2 lb. of chocolate?

7. Fred drove his automobile 56 miles in the morning and ½ as far in the afternoon. How far did he drive that day?

8. If 2 lb. of rock candy sugar cost $.26, what will 6 lb. cost?

9. Charlie swam 49 strokes. He rested for a while and then swam 48 strokes. How many strokes did he swim in all?

10. What must I pay for 3½ lb. of sugar at $.06 per pound?

133. Written Problems.

1. A grocer sold $3\frac{1}{2}$ lb. of tea to one customer, $1\frac{1}{4}$ lb. to another, $1\frac{1}{8}$ lb. to a third, and $2\frac{3}{4}$ lb. to a fourth. How much tea did he sell to the four customers?

2. I bought a cask of molasses containing 84 gal. 11 gal. leaked out. I sold the remainder for $.41 a gallon. How much did I receive for it?

3. If 10 horses cost $1,100, what will 63 horses cost at the same rate?

4. Find the cost of $2\frac{1}{2}$ lb. of chocolate at $.38 per pound.

5. From a roll of wire containing $21\frac{5}{8}$ yd., a man used $10\frac{1}{4}$ yd. How many yards did he then have?

6. Mr. Jackson owned $75\frac{1}{2}$ acres of land. He bought two other pieces of land, one of $32\frac{1}{4}$ acres and the other of $21\frac{1}{8}$ acres. How much land did he then own?

7. A plot of ground contains 23,324 sq. ft. Its depth is 98 ft. What is its width?

8. Mr. Brown started on an automobile trip of 768 miles. His machine broke down after going $\frac{5}{12}$ of the distance. How many miles had he gone?

9. The divisor is 16, the quotient is 74, and the remainder is 3. What is the dividend?

10. A woman went shopping with $20. She spent these amounts: $2.75, $5.35, $.98, and $10.17. How much money did she have left when she returned home?

ELEVENTH WEEK

COUNTING; WRITING NUMBERS

134. Exercises.

1. Beginning with 7, count by 4's to 103.

2. Beginning with 7, count by 5's to 102.

3. Beginning with 69, count backwards by 6's.

4. Write in Roman numbers: 142, 256, 375, 499, 500, 39, 861, 643, 531, 1000.

ADDITION

135. Oral Exercises.

Give answers:

37 + 46	52 + 28	58 + 42	33 + 63	42 + 71
54 + 82	28 + 91	41 + 94	77 + 37	66 + 82
36 + 45	53 + 27	34 + 64	44 + 71	55 + 82
27 + 91	41 + 96	77 + 47	66 + 83	65 + 91

136. Written Exercises.

1.	**2.**	**3.**
97,604	$656.95	75,683
80,952	480.98	92,085
90,067	305.87	79,900
83,303	936.00	94,327
94,653	497.09	70,455
89,730	559.70	93,607
80,001	300.58	71,444
95,499	808.90	90,011
87,657	785.76	78,676

4. $ 95.76	5. 99,999	6. $569.07
446.99	60,060	631.45
469.08	95,374	429.80
764.30	68,680	550.25
787.97	94,875	608.72
609.75	63,364	475.09
570.00	78,406	548.67
978.85	68,500	633.84
846.07	95,787	478.34

7. Add: Seven hundred seven dollars and eighty-nine cents,

Eight hundred dollars and seventy-two cents,

Two hundred eighty-five dollars and nine cents,

Nine hundred six dollars and eighty-seven cents,

Three hundred ninety-six dollars and seventy-nine cents,

Seven hundred forty dollars and five cents,

Five hundred dollars and ninety cents,

Six hundred ninety-eight dollars and sixty-seven cents,

Seven hundred fifty-four dollars and thirty-two cents.

8. Find the sum of

Sixty-nine thousand nine hundred forty-nine,

Eighty-nine thousand ninety-eight,

Forty-five thousand five hundred ninety-four,

Eight thousand seven hundred five,

Eighty-three thousand four hundred seventy,

· Fifty-seven thousand forty-eight,
Forty-five thousand seven hundred ninety-four,
Fifty thousand nine hundred eighty-seven,
Eighty-four thousand fifty.

MULTIPLICATION

137. Oral Exercises.

Find the cost of

1. 19 articles at 4¢ each.
2. 24 articles at 4¢ each.
3. 18 articles at 5¢ each.
4. 19 articles at 5¢ each.
5. 13 articles at 6¢ each.

6. 15 articles at 6¢ each.
7. 16 articles at 6¢ each.
8. 13 articles at 7¢ each.
9. 14 articles at 7¢ each.
10. 17 articles at 5¢ each.

138. Written Exercises.

$$50 = \tfrac{1}{2} \text{ of } 100.$$

A short way of multiplying by 50 is to multiply by 100 and divide by 2.

Find products:

1. 24×50
2. 68×50
3. 226×50
4. 648×50
5. $2{,}784 \times 300$
6. $\$8.69 \times 704$
7. $1{,}695 \times 402$
8. $\$9.74 \times 563$

DIVISION

139. Oral Exercises.

1. Supply the missing factors and multiples:

$? \div 2 = 39$ $? \times 3 = 78$ $? \times 3 = 81$

$2 \times ? = 98$ $? \div 4 = 23$ $? \div 24 = 4$

2. Give two factors of the following: 48, 92, 38, 108, 96, 121.

3. Divide at sight:

| 12)56 | 12)109 | 4)41 | 5)59 |

| 7)31 | 9)110 | 12)101 | 8)99 |

| 6)63 | 4)50 | 8)100 | 8)90 |

140. Written Exercises.

Find quotients and prove:

1. 362,519 ÷ 83   **3.** 173,367 ÷ 121   **5.** $9,553.50 ÷ 362

2. 218,989 ÷ 814   **4.** 264,584 ÷ 81   **6.** $3,789.66 ÷ 98

FRACTIONS

141. Oral Exercises.

1. Give answers:

$\frac{6}{7}$ of 77 $\frac{5}{8}$ of 40 $\frac{9}{10}$ of 100 $\frac{8}{9}$ of 27

$\frac{1}{3}$ of 99 $\frac{6}{7}$ of 63 $\frac{7}{12}$ of 24 $\frac{3}{8}$ of 32

2. Give answers:

$\frac{1}{5}$ of 95 $\frac{5}{7}$ of 63 $\frac{7}{10}$ of 100 $\frac{1}{3}$ of 39

$\frac{5}{7}$ of 42 $\frac{1}{5}$ of 85 $\frac{11}{2}$ of 12 $\frac{3}{7}$ of 84

$\frac{3}{7}$ of 63 $\frac{1}{6}$ of 132 $\frac{3}{10}$ of 80 $\frac{1}{5}$ of 125

3. Reduce to lower terms:

$\frac{3}{9}$ $\qquad$ $\frac{3}{12}$ $\qquad$ $\frac{2}{12}$ $\qquad$ $\frac{6}{12}$ $\qquad$ $\frac{2}{14}$ $\qquad$ $\frac{7}{14}$

$\frac{10}{14}$ $\qquad$ $\frac{3}{15}$ $\qquad$ $\frac{9}{15}$ $\qquad$ $\frac{12}{15}$ $\qquad$ $\frac{2}{16}$ $\qquad$ $\frac{8}{16}$

$\frac{12}{16}$ $\qquad$ $\frac{3}{18}$ $\qquad$ $\frac{9}{18}$ $\qquad$ $\frac{2}{20}$ $\qquad$ $\frac{12}{20}$ $\qquad$ $\frac{2}{30}$

4. Change to mixed numbers:

$\frac{11}{5}$ $\qquad$ $\frac{14}{6}$ $\qquad$ $\frac{8}{7}$ $\qquad$ $\frac{14}{12}$ $\qquad$ $\frac{12}{11}$ $\qquad$ $\frac{10}{9}$

$\frac{11}{8}$ $\qquad$ $\frac{12}{8}$ $\qquad$ $\frac{12}{5}$ $\qquad$ $\frac{11}{6}$ $\qquad$ $\frac{9}{7}$ $\qquad$ $\frac{15}{12}$

142. Written Exercises.

Add:

1. $9\frac{1}{2}$ $\qquad$ 2. $8\frac{1}{2}$ $\qquad$ 3. $15\frac{1}{2}$ $\qquad$ 4. $12\frac{1}{4}$

$\quad$ $6\frac{3}{4}$ $\qquad\qquad$ $9\frac{2}{3}$ $\qquad\qquad$ $52\frac{1}{4}$ $\qquad\qquad$ $9\frac{1}{2}$

$\quad$ $8\frac{1}{2}$ $\qquad\qquad$ $12\frac{1}{10}$ $\qquad\qquad$ $31\frac{3}{4}$ $\qquad\qquad$ $14\frac{7}{10}$

5. $16\frac{11}{12}$ $\qquad$ 6. $12\frac{3}{4}$ $\qquad$ 7. $63\frac{3}{4}$ $\qquad$ 8. $10\frac{1}{2}$

$\quad$ $27\frac{5}{6}$ $\qquad\qquad$ $14\frac{2}{3}$ $\qquad\qquad$ $29\frac{1}{2}$ $\qquad\qquad$ $16\frac{5}{12}$

$\quad$ $35\frac{2}{3}$ $\qquad\qquad$ $18\frac{1}{6}$ $\qquad\qquad$ $41\frac{5}{8}$ $\qquad\qquad$ $25\frac{1}{2}$

$\quad$ $10\frac{1}{2}$ $\qquad\qquad$ $29\frac{5}{12}$ $\qquad\qquad$ $30\frac{5}{8}$ $\qquad\qquad$ $31\frac{1}{3}$

9. $21\frac{1}{2}$ $\qquad$ 10. $12\frac{1}{2}$ $\qquad$ 11. $8\frac{3}{4}$ $\qquad$ 12. $69\frac{1}{5}$

$\quad$ $33\frac{5}{6}$ $\qquad\qquad$ $31\frac{3}{4}$ $\qquad\qquad$ $9\frac{1}{2}$ $\qquad\qquad$ $17\frac{1}{10}$

$\quad$ $40\frac{1}{3}$ $\qquad\qquad$ $43\frac{3}{4}$ $\qquad\qquad$ $37\frac{3}{10}$ $\qquad\qquad$ $11\frac{1}{15}$

$\quad$ $16\frac{7}{12}$ $\qquad\qquad$ $7\frac{1}{4}$ $\qquad\qquad$ $15\frac{1}{4}$ $\qquad\qquad$ $8\frac{2}{5}$

13. $27\frac{1}{4}$	14. $19\frac{2}{3}$	15. $64\frac{3}{4}$	16. $25\frac{1}{2}$
$91\frac{1}{2}$	$110\frac{7}{12}$	$17\frac{1}{12}$	$34\frac{1}{8}$
$7\frac{1}{3}$	$6\frac{5}{8}$	$85\frac{1}{2}$	$19\frac{1}{6}$
$11\frac{1}{12}$	$23\frac{1}{2}$	$9\frac{1}{3}$	$5\frac{1}{4}$

17. $51\frac{1}{5}$	18. $35\frac{6}{7}$	19. $34\frac{1}{3}$	20. $14\frac{3}{5}$
$48\frac{1}{4}$	$46\frac{3}{14}$	$25\frac{1}{6}$	$45\frac{3}{4}$
$20\frac{1}{10}$	$9\frac{1}{2}$	$16\frac{1}{18}$	$15\frac{7}{10}$

MEASUREMENT

143. Oral Exercises.

1. Draw on the blackboard a square one foot long by one foot wide. This is a square foot.

2. How many square feet are there in a blackboard 20 ft. long and 4 ft. wide?

If we multiply the number of feet in the length of a rectangle by the number of feet in its width, we find its area.

Find the areas of the following rectangles:

3. 9 ft. by 12 ft.
6. 12 ft. by 8 ft.
4. 12 ft. by 12 ft.
7. 15 ft. by 10 ft.
5. 30 ft. by 9 ft.
8. 11 ft. by 12 ft.

9. The top of a teacher's desk is 3 ft. long and 2 ft. wide. How many square feet are there in the top of the desk?

10. A city lot is usually 25 ft. on the street and it extends back 100 ft. How many square feet does it contain?

11. A room contains 108 sq. ft. Its length is 12 ft. What is its breadth?

144. Written Exercises.

1. How many feet long is your classroom? How many feet wide is your classroom? What is the area of the room?

2. A man owned a piece of land 50 ft. on the sidewalk and going back 125 ft. from the sidewalk. How many square feet did he own?

3. A playground is 75 ft. long and 42 ft. wide. How many square feet does it contain?

4. A room is 21 ft. by 18 ft. How many square feet are there in the room?

145. Oral Problems.

1. One grade of ribbon costs $.27 per yard. A better grade costs $.32 per yard. A third grade costs $.45 per yard. Make and solve several problems asking for the price of a fraction of a yard.

2. Mother baked a number of pies. The family ate several pies and the fraction of a pie. Make and solve problems telling the number of pies left.

3. Mary had $.47 and her aunt gave her some more money. Make and solve problems telling how many cents she was given and how much she then had.

4. There are 108 books in the closet. They are in equal piles. Make and solve problems telling the number of piles of books and the number of books in each pile.

5. Make and solve problems in which you give the length and breadth of rooms and tell the number of square feet in the rooms.

146. Written Problems.

1. There are 6 schools in a certain district. One has 1,352 pupils. The others have registers greater or less than this one. Make and solve a problem in addition showing the total number of pupils in these six schools.

2. Two armies meet in battle. One has 55,389 men ; the other army is smaller. Make and solve a problem in subtraction telling how much greater one army is than the other.

3. A man left $\frac{1}{5}$ of his money to one of his sons. Make and solve a problem telling the sum of money this son received.

4. A man traveled 2,965 miles in an automobile. He went the same distance every day. Make and solve a problem telling the number of miles he traveled per day.

5. Mary saved $2.44 and received $1.37 from her uncle. She then spent some of her money. Make and solve a problem telling how much she had left after spending part of her money.

6. A tailor had a piece of cloth $15\frac{2}{3}$ yd. long. He sold 9 yd. and a fraction of a yard. Make and solve a problem telling the number of yards he had left.

7. A woman had $12\frac{1}{4}$ yd. of carpet. She bought 6 yd. and a fraction of a yard more. Make and solve a problem telling the number of yards she had after her purchase.

8. A man has $30. He wishes to buy a suit of clothes, a hat, a pair of shoes, a necktie, and a shirt. Tell what prices he should pay for these articles, and how much, if anything, he would have left after buying them.

TWELFTH WEEK

READING NUMBERS; COUNTING

147. Oral Exercises.

1. Read: M DLXXXII DCLXXVIII DCCCXCV DLXXXIV CDXLV CCCXX CCVI CXXXVI

2. Beginning with 7, count by 8's to 103.

3. Beginning with 7, count by 9's to 106.

4. Beginning with 52, count backwards by 5's.

SUBTRACTION

148. Oral Exercises.

Twelve boys saved their money for 2 months. Then the circus came to their town, and each one spent part of his savings to see the circus and to buy candy and peanuts. Tell how much each boy had when the circus left town.

Harry had 87¢ and spent 48¢.

George had 90¢ and spent 44¢.

Fred had 97¢ and spent 68¢.

Charles had 86¢ and spent 47¢.

Thomas had 98¢ and spent 59¢.

Guy had 76¢ and spent 49¢.

Will had 67¢ and spent 58¢.

Frank had 80¢ and spent 45¢.

Jim had 70¢ and spent 39¢.

John had 78¢ and spent 45¢.
Ray had 89¢ and spent 63¢.
Phil had 61¢ and spent 45¢.

149. Written Exercises.

1. $951.33
 − 562.45

2. 797,000
 −   618

3. If the minuend is six hundred eighty-five thousand six hundred forty-three and the subtrahend is five hundred forty-two thousand seven hundred sixty-five, what is the remainder?

4. Name and supply the missing term :   ?
                                          − 6,099
                                             2,877

5. Find the missing term : 732 + ? = 1,910.

6. $5,672.53
 −   .66

7. 968,356
 − 722,579

8. The minuend is eight hundred eighty thousand seventy-four and the subtrahend is three hundred sixty-six thousand two hundred twenty-one.   What is the difference?

MULTIPLICATION

150. Oral Exercises.

Find products :

2 × 35	2 × 47	2 × 27	2 × 36
2 × 38	2 × 49	2 × 37	11 × 11
2 × 39	2 × 29	2 × 48	2 × 26

151. Written Exercises.

Find products:

1. $1,764 \times 50$
2. 846×509
3. $\$12.24 \times 938$
4. $2,648 \times 604$

5. $\$85.78 \times 196$
6. 438×408
7. $5,728 \times 80$
8. $\$49.19 \times 307$

DIVISION

152. Oral Exercises.

1. Supply the missing factors and multiples:

$? \div 3 = 29$ $5 \div ? = 85$ $? \div 19 = 2$

$? \div 2 = 58$ $? \div 5 = 19$ $? \div 18 = 4$

2. Divide at sight:

$\frac{72}{12}$ $\frac{34}{7}$ $\frac{70}{6}$ $\frac{30}{8}$

$\frac{81}{7}$ $\frac{56}{6}$ $\frac{39}{8}$ $\frac{48}{7}$

$\frac{47}{8}$ $\frac{41}{7}$ $\frac{76}{6}$ $\frac{73}{6}$

153. Written Exercises.

1. $648,724 \div 12$ 3. $347,085 \div 857$ 5. $135,317 \div 439$

2. $117,799 \div 563$ 4. $192,816 \div 927$ 6. $\$3,473.24 \div 793$

FRACTIONS

154. Oral Exercises.

1. Give answers:

$\frac{11}{12}$ of 72 $\frac{5}{12}$ of 96 $\frac{8}{9}$ of 54 $\frac{5}{7}$ of 77 $\frac{7}{9}$ of 99

$\frac{4}{9}$ of 72 $\frac{4}{7}$ of 84 $\frac{7}{9}$ of 63 $\frac{5}{8}$ of 24 $\frac{3}{5}$ of 45

2. Find:

$\frac{3}{8}$ of 40 $\frac{1}{5}$ of 65 $\frac{4}{7}$ of 7 $\frac{5}{9}$ of 36 $\frac{1}{2}$ of 54

$\frac{7}{9}$ of 54 $\frac{1}{3}$ of 57 $\frac{5}{11}$ of 77 $\frac{5}{7}$ of 28 $\frac{11}{12}$ of 84

155. Written Exercises.

Subtract $3\frac{1}{3}$ from $7\frac{1}{6}$.

$$\begin{array}{r|r} & 6 \\ \hline 7\frac{1}{6} & 1 \\ 3\frac{1}{3} & 2 \\ \hline 3\frac{5}{6} & \frac{5}{6} \end{array}$$

$\frac{1}{3}$, the fraction in the subtrahend, is greater than $\frac{1}{6}$, the fraction in the minuend. Increase the fraction in the minuend by 1, or $\frac{6}{6}$, which makes it $\frac{7}{6}$. $\frac{2}{6}$ and $\frac{5}{6}$ make $\frac{7}{6}$. Write $\frac{5}{6}$.

Since 1 was added to the minuend, we add 1 to the subtrahend also. Add this 1 to 3, the whole number of the subtrahend. 4 and how many make 7? Write 3.

Find remainders:

1. $29\frac{1}{2} - 15\frac{2}{6}$ 5. $43\frac{1}{6} - 22\frac{2}{3}$ 9. $16\frac{1}{8} - 9\frac{1}{4}$

2. $37\frac{1}{10} - 25\frac{1}{4}$ 6. $24\frac{1}{12} - 12\frac{1}{6}$ 10. $35\frac{1}{12} - 21\frac{1}{4}$

3. $64\frac{2}{3} - 15\frac{1}{12}$ 7. $47\frac{3}{4} - 15\frac{3}{8}$ 11. $51\frac{5}{8} - 26\frac{2}{3}$

4. $55\frac{3}{8} - 22\frac{3}{4}$ 8. $89\frac{2}{3} - 27\frac{5}{6}$ 12. $38\frac{3}{10} - 16\frac{3}{5}$

Add:

13. $5\frac{11}{12}$ 14. $11\frac{5}{8}$ 15. $41\frac{1}{2}$ 16. $31\frac{2}{3}$

$16\frac{1}{2}$ $32\frac{1}{3}$ $15\frac{1}{4}$ $16\frac{1}{6}$

$14\frac{1}{8}$ $\frac{1}{2}$ $4\frac{1}{8}$ $7\frac{1}{2}$

$30\frac{1}{3}$ $19\frac{1}{2}$ $12\frac{1}{16}$ $22\frac{11}{12}$

17. $49\frac{4}{5}$	**18.** $47\frac{3}{4}$	**19.** $19\frac{3}{8}$	**20.** $55\frac{6}{7}$
$35\frac{3}{10}$	$12\frac{1}{2}$	$3\frac{1}{2}$	$10\frac{1}{2}$
$27\frac{2}{15}$	$9\frac{7}{10}$	$8\frac{3}{16}$	$17\frac{11}{14}$
21. $43\frac{7}{10}$	**22.** $15\frac{3}{4}$	**23.** $31\frac{3}{4}$	**24.** $29\frac{3}{5}$
$10\frac{3}{4}$	$27\frac{5}{12}$	$23\frac{5}{8}$	$17\frac{1}{4}$
$5\frac{4}{5}$	$19\frac{1}{3}$	$25\frac{7}{16}$	$34\frac{9}{10}$

MEASUREMENT

156. Oral Exercises.

1. What is the perimeter of a rectangle 5 ft. long and 6 ft. wide?

Find the perimeters of the following rectangles:

2. 7 ft. by 4 ft.   **4.** 6 ft. by 4 ft.

3. 9 ft. by 2 ft.   **5.** 8 ft. by 7 ft.

6. A room is 12 ft. by 10 ft. A strip of wood for hanging pictures is to be nailed around the room. How many feet of wood do we need?

7. How many feet of railing do we need to inclose a garden 9 ft. long by 6 ft. wide?

157. Written Exercises.

1. Find the perimeter of a rectangle 75 ft. long and 49 ft. wide.

2. A garden is 23 ft. long and 21 ft. wide. How many feet of wire are needed to inclose it?

3. The perimeter of a rectangular plot of ground is 300 ft. One side is 25 ft. How many feet are there in the longer side?

4. What is the perimeter of a rectangle whose length is $11\frac{1}{4}$ ft. and whose breadth is $9\frac{1}{4}$ ft.?

158. Oral Problems.

1. Make and solve a problem about the cost of these quantities of milk: $1\frac{1}{2}$ quarts, $2\frac{1}{2}$ quarts, $3\frac{1}{2}$ quarts, $4\frac{1}{2}$ quarts, $5\frac{1}{2}$ quarts, and $6\frac{1}{2}$ quarts.

2. Charles had $.95 and spent a certain number of cents. Make and solve problems telling how many cents he spent and how many cents he had left.

3. Our club has 15 members who pay weekly dues. Make and solve a problem telling how much the treasurer receives in one week when all the members pay their dues. Make some more problems in which the weekly dues are different.

4. A tailor made vests of various sizes, using $1\frac{1}{4}$ yards, $1\frac{1}{2}$ yards, $1\frac{3}{4}$ yards, $1\frac{1}{3}$ yards, and $1\frac{2}{3}$ yards of cloth for the different vests. For coats he used 3 yards and a fraction of a yard. Make and solve problems telling the number of yards of cloth he used for a coat and vest.

5. Make and solve problems in which you give the length and breadth of flower plots, etc., and in which you find the perimeters of these plots.

159. Written Problems.

1. From a roll of carpet containing 25 yd. a salesman cut $3\frac{1}{2}$ yd., $2\frac{2}{3}$ yd., and $3\frac{3}{10}$ yd. How many yards were left in the roll?

2. A coal dealer bought coal for $3.75 a ton and sold it for $4.25 a ton. What was his profit on 975 tons?

3. If oranges sell for $.93 per dozen, what must I pay for $2\frac{1}{3}$ doz.?

4. A farmer had $125\frac{7}{10}$ bushels of wheat. He sold $92\frac{1}{5}$ bushels. How much did he have left?

5. Last month Mr. Smith paid these bills: $2\frac{3}{4}$ for gas, $5\frac{1}{2}$ for laundry, $1\frac{1}{4}$ for newspapers, and $2\frac{3}{4}$ for milk. What was the amount of these four bills?

6. How much must be added to $12\frac{1}{8}$ to make $14\frac{5}{12}$?

7. If 15 barrels of flour cost $75, what will 83 barrels cost?

8. Mr. Jones bought a house for $5,067, paying $\frac{4}{5}$ of the price in cash. How much cash did he pay?

9. A grocer bought 65 bushels of potatoes at 65 cents a bushel. He sold them for $61. How much did he gain?

10. Mr. Smith owned $210\frac{3}{10}$ ft. of waterfront. He sold $105\frac{1}{2}$ ft. How much did he have left?

THIRTEENTH WEEK

COUNTING; WRITING NUMBERS

160. Exercises.

1. Beginning with 8, count by 3's to 101.

2. Beginning with 9, count by 4's to 101.

3. Write in Roman numbers: 947, 868, 754, 632, 520, 500, 488, 364, 245, 131.

ADDITION

161. Oral Exercises.

Give answers:

35¢ + 44¢	54¢ + 26¢	56¢ + 44¢
35¢ + 66¢	43¢ + 71¢	56¢ + 82¢
26¢ + 93¢	41¢ + 97¢	77¢ + 57¢
66¢ + 84¢	34¢ + 45¢	53¢ + 25¢
55¢ + 43¢	36¢ + 65¢	42¢ + 71¢
57¢ + 82¢	25¢ + 93¢	41¢ + 98¢
77¢ + 67¢	66¢ + 85¢	39¢ + 76¢

162. Written Exercises.

1.	**2.**	**3.**
78,943	93,475	$3,654.25
65,058	87,668	239.08
59,960	95,347	390.76
70,574	84,763	107.47
68,335	99,569	200.64
57,709	81,117	170.70
72,457	94,852	98.34
6,941	85,663	247.63
54,046	96,448	156.07

4.	5.	6.
87,560	$577.01	$ 703.74
8,953	703.67	430.06
968	850.05	938.10
81,673	496.50	565.24
699	900.85	301.53
8,805	939.00	725.68
68,397	658.43	1,268.49
5,690	697.56	40.75
58,959	945.85	213.08
68,085	475.06	67.79

7. Find the sum of
Five hundred seventy-six dollars and eight cents,
Four hundred five dollars and seventy-five cents,
Three hundred ninety-nine dollars and ninety cents,
Five hundred twenty-four dollars and thirty-seven cents,
Four hundred ninety dollars and sixty-four cents,
Three hundred eighty-five dollars and seventy-nine cents,
Five hundred seventy-eight dollars and eighty-five cents,
Four hundred sixty-three dollars and twenty-two cents,
Three hundred ninety-nine dollars and seventy-eight cents.

8. Add: Eighty-six thousand four hundred seventy-nine,
Seven hundred seven,
Five thousand five hundred ninety-six,
Sixty-seven thousand eight hundred ninety-three,
Ninety-nine thousand seventy-eight,
Nine hundred seventy-five,
Eight thousand eight hundred fifty,

Forty-five thousand eight hundred ninety-seven,
Seven thousand seven hundred fifty-six,
Ninety-five thousand five hundred eighty-nine.

MULTIPLICATION

163. Oral Exercises.

Find products:

3×14	3×27	8×9
3×16	3×29	6×9
3×19	3×28	5×9
3×17	3×18	9×7
3×15	12×11	12×9
3×26	11×11	11×10

164. Written Exercises.

Find products:

1. 758×507
2. $\$374.95 \times 68$
3. $\$9.48 \times 609$
4. $\$8.65 \times 574$
5. $\$47.92 \times 83$
6. 597×800
7. 858×50
8. $\$8.68 \times 653$

DIVISION

165. Oral Exercises.

1. Supply the missing factors and multiples:

$? \div 8 = 19$	$? \div 18 = 5$	$7 \times ? = 91$
$? \div 4 = 24$	$? \times 6 = 78$	$? \times 7 = 98$

2. Give two factors of the following: 56, 96, 63, 54, 110, 108.

3. Divide at sight:

$$\frac{59}{7} \qquad \frac{97}{8} \qquad \frac{64}{7} \qquad \frac{55}{9}$$

$$\frac{110}{9} \qquad \frac{111}{10} \qquad \frac{98}{12} \qquad \frac{65}{9}$$

$$\frac{56}{6} \qquad \frac{100}{12} \qquad \frac{107}{9} \qquad \frac{57}{8}$$

166. Written Exercises.

Find quotients and prove:

1. $856,604 \div 238$ **3.** $683,569 \div 598$ **5.** $654,377 \div 312$

2. $\$3,073.14 \div 567$ **4.** $285,804 \div 934$ **6.** $\$2,489.70 \div 965$

FRACTIONS

167. Oral Exercises.

1. Give answers:

$\frac{1}{4}$ of 80 $\frac{2}{5}$ of 30 $\frac{1}{3}$ of 75 $\frac{4}{5}$ of 25 ,$\frac{9}{10}$ of 40

$\frac{2}{11}$ of 110 $\frac{1}{3}$ of 51 $\frac{5}{12}$ of 84 $\frac{8}{11}$ of 66 $\frac{1}{5}$ of 120

2. Find:

$\frac{7}{9}$ of 45 $\frac{1}{3}$ of 54 $\frac{3}{4}$ of 52 $\frac{5}{6}$ of 48 $\frac{1}{2}$ of 80

$\frac{4}{5}$ of 60 $\frac{1}{2}$ of 40 $\frac{3}{4}$ of 32 $\frac{1}{2}$ of 28 $\frac{1}{4}$ of 64

3. Reduce to lower terms:

$$\frac{6}{8} \qquad \frac{4}{12} \qquad \frac{9}{12} \qquad \frac{10}{12} \qquad \frac{4}{14} \qquad \frac{6}{14}$$

$$\frac{8}{14} \qquad \frac{12}{14} \qquad \frac{5}{15} \qquad \frac{10}{15} \qquad \frac{6}{15} \qquad \frac{4}{16}$$

$$\frac{6}{16} \qquad \frac{18}{16} \qquad \frac{14}{16} \qquad \frac{9}{30} \qquad \frac{14}{20} \qquad \frac{16}{20}$$

4. Change to mixed numbers:

$$\frac{11}{9} \qquad \frac{14}{8} \qquad \frac{12}{9} \qquad \frac{14}{11} \qquad \frac{18}{12} \qquad \frac{10}{7}$$

$$\frac{15}{6} \qquad \frac{14}{5} \qquad \frac{14}{9} \qquad \frac{15}{11} \qquad \frac{17}{12} \qquad \frac{11}{7}$$

168. Written Exercises.

Add:

1. $45\frac{5}{6}$
   $33\frac{7}{18}$
   $64\frac{1}{3}$

2. $15\frac{7}{8}$
   $98\frac{3}{4}$
   $2\frac{1}{2}$

3. $8\frac{3}{5}$
   $9\frac{1}{10}$
   $1\frac{1}{15}$

4. $34\frac{3}{5}$
   $24\frac{1}{4}$
   $12\frac{1}{10}$

5. $19\frac{5}{8}$
   $24\frac{5}{16}$
   $16\frac{1}{2}$

6. $104\frac{5}{7}$
   $37\frac{9}{14}$
   $2\frac{1}{2}$

7. $29\frac{7}{12}$
   $35\frac{3}{4}$
   $27\frac{2}{3}$

8. $12\frac{2}{3}$
   $14\frac{2}{9}$
   $6\frac{5}{18}$

9. $50\frac{11}{12}$
   $17\frac{5}{6}$
   $63\frac{2}{3}$
   $21\frac{3}{4}$

10. $32\frac{7}{12}$
    $25\frac{2}{3}$
    $8\frac{1}{2}$
    $20\frac{3}{4}$

11. $26\frac{2}{3}$
    $33\frac{1}{2}$
    $10\frac{5}{6}$
    $18\frac{11}{12}$

12. $48\frac{2}{3}$
    $14\frac{1}{2}$
    $27\frac{5}{12}$
    $19\frac{3}{4}$

Find remainders:

13. $49 \quad - 14\frac{11}{12}$

14. $72\frac{11}{14} - 31\frac{2}{7}$

15. $44\frac{7}{12} - 12\frac{5}{6}$

16. $29\frac{3}{5} \quad - 16\frac{7}{10}$

17. $28\frac{3}{4} \quad - 16\frac{7}{8}$

18. $51\frac{13}{16} - 27\frac{3}{8}$

19. $39\frac{5}{12} - 22\frac{2}{3}$

20. $43\frac{1}{2} \quad - 20\frac{5}{6}$

21. $35\frac{4}{5} \quad - 21\frac{9}{10}$

22. $63\frac{7}{12} - 14\frac{3}{4}$

23. $36\frac{1}{8} \quad - 14\frac{3}{4}$

24. $33\frac{5}{16} - 11\frac{5}{8}$

MEASUREMENT

169. Oral Exercises.

1. Draw on the board a square whose sides are one yard long. This is a square yard.

2. What is a square inch? What is a square foot? What is a square yard?

3. How do we find the area of a rectangle?

4. A playground is 20 yd. long and 10 yd. wide. How many square yards does it contain?

5. How many yards long is your classroom? How many yards wide? What is the area of the floor?

Use no fractions. If the room is 6¾ yd. long, say that its length is 7 yd. If the width of the room is 5¼ yd., say that the width is 5 yd.

6. How many square yards are contained in a square whose sides measure 11 yd.?

7. How many yards are there in the perimeter of a square containing 36 sq. yd.?

170. Written Exercises.

1. A ballroom is 32 yd. long and 18 yd. wide. How many square yards does it contain?

2. Find the perimeter of a rectangular field 76 yd. long and 39 yd. wide.

3. The area of a field is 240 sq. yd. Its width is 15 yd. What is its length?

171. Oral Problems.

1. John has $.95 and his sister has $.91. How much money have they both?

2. If 4 oz. of curry powder cost $.19, what will 16 oz. cost?

3. Find the cost of 1¼ lb. of chocolate at $.32 per pound.

4. A hallway contains 133 sq. ft. Its width is 7 ft. What is its length?

5. If 3 bags of salt cost \$.24, what will 9 bags cost?

6. Our dog Jack is ill. I bought 3 lb. of puppy meal for him at \$.24 per pound. What did the puppy meal cost me?

7. Harry and his younger brother have saved \$.96. $\frac{2}{3}$ of this belongs to Harry. How many cents belong to his younger brother?

8. Charlie walked 83 blocks in the morning and 67 blocks in the afternoon. How many blocks did he walk that day?

9. Find the cost of $2\frac{1}{4}$ lb. of cocoa at \$.24 per pound.

10. The area of a square is 144 sq. yd. What is its length?

172. Written Problems.

1. A party of Boy Scouts set out on a walk of 35 miles to be done in 3 days. They walked $11\frac{1}{3}$ miles the first day, and $10\frac{5}{8}$ miles the second day. How far did they walk the third day?

2. A man traded his house, worth \$8,567.25, for 250 acres of land, worth \$40 an acre. How much did he gain?

3. A merchant had 432 yd. of cloth and sold $\frac{7}{12}$ of it. How many yards did he sell?

4. What is the cost of $3\frac{1}{4}$ lb. of fine tea at \$.64 per pound?

5. I bought a watch for \$87$\frac{9}{10}$ and sold it for \$78$\frac{4}{5}$. How much did I lose?

6. A boy studied $2\frac{1}{3}$ hours on Monday, $3\frac{1}{2}$ hours on Tuesday, $2\frac{1}{8}$ hours on Wednesday, and $1\frac{2}{3}$ hours on Thursday. How many hours did he study in the four days?

7. A grocer had 19 bushels of apples. He picked out from them $2\frac{5}{8}$ bushels of bad apples. How many bushels were left?

8. You can buy 25 one-pound packages of macaroni for $3.10 or you can buy macaroni in single packages for $.14 a pound. How much cheaper is the first way than the second?

9. A merchant sold 5 tons of coal for $5.25 a ton. With the money he bought 15 loads of wood. How much did he pay for each load of wood?

10. Mrs. Black had $20\frac{3}{4}$ yd. of silk. She used $11\frac{1}{2}$ yd. for a dress for herself and $7\frac{1}{8}$ yd. for a dress for her daughter. How many yards were left?

FOURTEENTH WEEK

READING NUMBERS; COUNTING

173. Oral Exercises.

1. Read: CDXC DCXXII DCCCLVIII DCCXLIV CDXLIV CDXLVII CDLXXVIII CCLIII CXXXV LXXXIX DX

2. Beginning with 9, count by 8's to 105.

SUBTRACTION

174. Oral Exercises.

1. Subtract 15 from each of these numbers: 31, 53, 42, 64.

2. Subtract 16 from each of these numbers: 71, 93, 82, 54, 45.

3. Subtract 17 from each number: 41, 92, 73, 84, 52, 65, 36.

4. Subtract 18 from each number: 91, 64, 53, 42, 75, 36, 87.

5. Subtract 19 from each number: 48, 71, 52, 57, 66, 85, 94, 33.

175. Written Exercises.

1.	876,314	**2.**	759,000
−	87		− 422,111

3. From three hundred nine dollars and seventy cents subtract forty-eight dollars and sixty-two cents.

4. Name and supply the missing term: 9,437
$$\begin{array}{r} 9{,}437 \\ -\ 2{,}649 \\ \hline ? \end{array}$$

5. Find the missing term: $? + 141 = 1{,}000.$

6. $1,771.43
$$\begin{array}{r} \$1{,}771.43 \\ -\quad 852.54 \\ \hline \end{array}$$

7.   963,656
$$\begin{array}{r} 963{,}656 \\ -\qquad 768 \\ \hline \end{array}$$

8. The minuend is nine hundred ninety thousand **and** the subtrahend is three hundred twenty-one thousand **two** hundred forty-two.   What is the remainder?

MULTIPLICATION

176. Written Exercises.

Multiply across and add the products:

1. $4 \times 17 =$
  $4 \times 13 =$
  $4 \times 24 = \underline{\quad}$
       $?$

2. $4 \times 16 =$
  $4 \times 15 =$
  $4 \times 26 = \underline{\quad}$
       $?$

3. $4 \times 28 =$
  $4 \times 29 =$
  $4 \times 18 = \underline{\quad}$
       $?$

4. $4 \times 23 =$
  $4 \times 14 =$
  $4 \times 19 = \underline{\quad}$
       $?$

5. $12 \times\ 8 =$
  $7 \times 12 =$
  $12 \times\ 6 = \underline{\quad}$
       $?$

6. $11 \times 12 =$
  $5 \times 12 =$
  $12 \times\ 4 = \underline{\quad}$
       $?$

Find products:

7. $4.28 × 395   9. 1,342 × 60

8. 724 × 908   10. $7.85 × 579

DIVISION
177. Oral Exercises.

1. Supply the missing factors and multiples:

2 × ? = 94	? ÷ 27 = 2
? × 2 = 96	? ÷ 2 = 29
2 × ? = 74	? ÷ 2 = 49

2. Divide at sight:

70)840   80)560   50)600   70)420

80)720   70)490   120)360   120)240

60)360   90)720   60)420   70)560

178. Written Exercises.

Find quotients and prove:

1. 437,584 ÷ 73   3. 13,452 ÷ 2,242   5. $3,946.04 ÷ 829

2. 289,435 ÷ 241   4. 38,652 ÷ 3,221   6. $2,755.95 ÷ 285

FRACTIONS
179. Oral Exercises.

1. Give answers:

$\frac{5}{7}$ of 56 $\frac{1}{5}$ of 60 $\frac{3}{4}$ of 48 $\frac{5}{6}$ of 54 $\frac{5}{12}$ of 60

$\frac{5}{9}$ of 63 $\frac{1}{6}$ of 84 $\frac{1}{7}$ of 105 $\frac{7}{12}$ of 48 $\frac{7}{8}$ of 32

2. Find:

$\frac{1}{6}$ of 78 $\frac{5}{6}$ of 90 $\frac{1}{5}$ of 75 $\frac{5}{6}$ of 12 $\frac{2}{3}$ of 39

$\frac{1}{12}$ of 36 $\frac{9}{11}$ of 66 $\frac{3}{5}$ of 60 $\frac{1}{7}$ of 84 $\frac{1}{5}$ of 100

3. Reduce to lower terms:

$\frac{4}{18}$ $\frac{6}{18}$ $\frac{8}{18}$ $\frac{10}{18}$ $\frac{12}{18}$ $\frac{14}{18}$

$\frac{16}{18}$ $\frac{4}{20}$ $\frac{6}{20}$ $\frac{8}{20}$ $\frac{10}{20}$ $\frac{3}{30}$

$\frac{4}{30}$ $\frac{6}{30}$ $\frac{10}{30}$ $\frac{14}{30}$ $\frac{20}{30}$ $\frac{25}{30}$

4. Change to mixed numbers:

$\frac{16}{5}$ $\frac{25}{6}$ $\frac{15}{7}$ $\frac{18}{12}$ $\frac{16}{11}$ $\frac{15}{9}$

$\frac{19}{8}$ $\frac{12}{7}$ $\frac{16}{6}$ $\frac{25}{7}$ $\frac{25}{12}$ $\frac{18}{11}$

180. Written Exercises.

Add:

1. $38\frac{3}{7}$ **2.** $23\frac{4}{7}$ **3.** $51\frac{7}{8}$ **4.** $91\frac{1}{11}$
$\quad\ 22\frac{5}{14}$ $\quad\ 19\frac{9}{14}$ $\quad\ 15\frac{11}{16}$ $\quad\ 22\frac{15}{22}$

5. $16\frac{1}{3}$ **6.** $79\frac{9}{10}$ **7.** $8\frac{1}{5}$ **8.** $24\frac{3}{4}$
$\quad\ 26\frac{2}{5}$ $\quad\ 18\frac{1}{2}$ $\quad\ 19\frac{1}{10}$ $\quad\ 18\frac{5}{8}$
$\quad\ 43\frac{2}{15}$ $\quad\ 5\frac{2}{3}$ $\quad\ 11\frac{3}{20}$ $\quad\ 7\frac{7}{16}$

9. $9\frac{7}{18}$ **10.** $12\frac{2}{3}$ **11.** $10\frac{1}{11}$ **12.** $34\frac{1}{20}$
$\quad\ 7\frac{1}{2}$ $\quad\ 19\frac{5}{6}$ $\quad\ 12\frac{1}{22}$ $\quad\ 17\frac{1}{4}$
$\quad\ 12\frac{1}{3}$ $\quad\ 4\frac{7}{18}$ $\quad\ 1\frac{1}{2}$ $\quad\ 50\frac{1}{5}$
$\quad\ 32\frac{1}{6}$ $\quad\ 40\frac{1}{9}$ $\quad\ 15\frac{1}{44}$ $\quad\ 5\frac{7}{10}$

Find remainders:

13. $25\frac{4}{7} - 16\frac{1}{14}$ 17. $15\frac{11}{20} - 7\frac{1}{4}$ 21. $49\frac{7}{16} - 15\frac{1}{2}$

14. $69\frac{7}{10} - 18\frac{1}{3}$ 18. $44\frac{1}{3} - 12\frac{7}{10}$ 22. $39\frac{1}{14} - 21\frac{4}{7}$

15. $34\frac{11}{20} - 15\frac{9}{10}$ 19. $37\frac{3}{10} - 25\frac{3}{5}$ 23. $77\frac{4}{7} - 24\frac{13}{14}$

16. $94\frac{1}{9} - 30\frac{5}{18}$ 20. $29\frac{5}{18} - 14\frac{1}{2}$ 24. $56\frac{1}{2} - 14\frac{7}{18}$

MEASUREMENT

181. Oral Exercises.

1. Draw on the blackboard a square foot. Each side of the square foot on the blackboard will be 12 times as long as the sides of the drawings on this page.
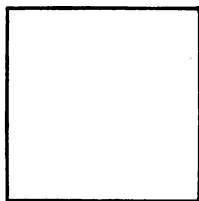
2. How many inches are there in each side of a square foot? Mark off the inches on each side of the square foot on the blackboard. Connect the marks, so as to make a figure like this.

3. What is each one of these little squares called?
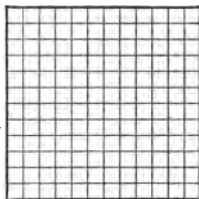
4. How many square inches are there in the top row?

5. How many rows from top to bottom?

6. How many square inches in a square foot?

182. Written Exercises.

1. How many square inches are there in 2 sq. ft.? In 5 sq. ft.?

2. How many square inches are there in $\frac{1}{2}$ sq. ft.? In $\frac{1}{4}$ sq. ft.? $\frac{1}{3}$ sq. ft.?

3. How many square feet are there in 1,152 sq. in.?

4. A teacher's desk is 3 ft. long by 2 ft. wide. How many square inches does it contain?

183. Oral Problems.

1. What will 19 fancy penholders cost at $.05 each?

2. If 2 lb. of ginger cost $.46, what will 4 lb. cost?

3. A city lot 100 ft. deep contains 2,300 sq. ft. How wide is the frontage?

4. What must I pay for 3 cans of imported mustard at $.27 per can?

5. Mother bought at the druggist's a box of cough tablets for $.49 and an eye wash for $.49. How much did she pay the druggist?

6. A dealer had 84 neckties and sold 69 of them. How many did he have left?

7. Find the cost of $1\frac{1}{4}$ lb. of cheese at $.28 per pound.

8. Draw on the blackboard a square yard. Divide the square yard into square feet. How many square feet are there in one square yard?

9. How many square yards are there in 81 sq. ft.?

10. A tailor had a roll of cloth containing 33 yd. He used $\frac{19}{11}$ of it for coats and the remainder for vests. How many yards did he use for the vests?

11. If 9 lb. of bird seed cost $1.08, what will 12 lb. cost?

12. What is the perimeter of a square table, one of whose sides measures $5\frac{1}{2}$ ft. ?

184. Written Problems.

1. A clock strikes the hours. How often will it strike during the month of January?

2. In making a coat, a tailor used $3\frac{1}{7}$ yd. of cloth. Find the cost of the cloth at \$1.47 per yard.

3. How many hours are there in $\frac{1}{8}$ of a week?

4. The minuend is $96\frac{5}{12}$ and the remainder is $24\frac{1}{16}$. What is the subtrahend?

5. A dealer bought cloth for \$.78 a yard and sold it for \$1 a yard. How much did he make on 75 yd. ?

6. A woman bought a piano for \$425. She paid \$125 down and the remainder at the rate of \$12 per month. How many monthly payments did she make?

7. Find the cost of $8\frac{1}{4}$ gal. of molasses at \$.60 per gallon.

8. What is the cost of 65 miles of railroad at \$29,378 a mile?

9. One half of 240 overcoats were sold at \$18 each. The other half were sold at \$15 each. How much was received for the entire lot?

10. Mr. Jacobs charges these rents per month in the house which he owns: top floor, \$16.50; fourth floor, \$17.50; third floor, \$19; second floor, \$21; ground floor, \$18.50. There are two apartments on each floor. How much does he receive per month when every apartment is occupied?

COUNTING; WRITING NUMBERS

185. Exercises.

1. Beginning with 8, count by 9's to 107.

2. Write in Roman numbers: 646, 725, 532, 410, 308, 312, 267, 142, 123, 154.

ADDITION

186. Oral Exercises.

1. Give answers: 33¢ + 46¢   55¢ + 26¢   87¢ + 66¢

51¢ + 86¢   24¢ + 94¢   46¢ + 71¢

93¢ + 88¢   89¢ + 91¢   99¢ + 88¢

2. Add: 54¢ + 42¢   41¢ + 89¢   85¢ + 95¢   66¢ + 86¢

41¢ + 99¢   37¢ + 64¢   38¢ + 63¢   89¢ + 82¢

87¢ + 90¢   77¢ + 77¢   45¢ + 71¢   52¢ + 39¢

187. Written Exercises.

1.	**2.**	**3.**
86,494	$622.66	99,609
19,432	195.65	45,240
74,768	486.90	77,135
75,116	425.59	62,461
36,110	802.25	68,308
39,159	917.09	35,177
20,789	399.46	78,077
43,963	310.97	63,937
40,440	606.53	87,771

4. $796.57	5. 69,314	6. $620.57
597.08	79,862	809.24
595.80	85,319	76.65
936.29	73,086	943.28
874.45	46,834	300.67
700.17	93,847	738.90
575.04	67,887	427.36
508.96	24,729	912.05
793.35	87,353	407.14

7. Add : Four hundred sixty-six dollars and eight cents,
Nine hundred thirty-four dollars and thirty cents,
Seven hundred seventy dollars and sixty-two cents,
Five hundred dollars and fifty-six cents,
Six hundred eighteen dollars and forty-seven cents,
Nine hundred thirty-three dollars and eight cents,
Nine hundred ninety-five dollars and seventy-five cents,
Five hundred forty-two dollars and eighteen cents,
Two hundred sixty-nine dollars and forty cents.

8. Add : Sixty-four thousand eight hundred ninety-three,
Ninety-nine thousand one hundred forty-six,
Eighty-six thousand three hundred twenty-two,
Eighty-three thousand eighty-five,

Seventy-six thousand five hundred thirty-one,
Sixty-two thousand seven hundred,
Fifty thousand eight hundred twenty-eight,
Thirty-one thousand one hundred sixteen,
Ninety-one thousand eight hundred twenty-eight.

MULTIPLICATION

188. Oral Exercises.

1. Find products:

4 × 25	3 × 24	5 × 13	5 × 14	5 × 16	5 × 20
4 × 23	3 × 19	5 × 18	5 × 15	5 × 17	5 × 19

2. Review the multiplication tables of sixes, sevens, and eights.

189. Written Exercises.

Find products:
 1. $25.65 × 78   5. 279 × 308
 2. $18.73 × 506   6. $67.75 × 145
 3. 985 × 600   7. 588 × 250
 4. $34.29 × 196   8. 6,789 × 30

DIVISION

190. Oral Exercises.

Supply the missing factors and multiples:

3 × ? = 42	15 × ? = 45	? ÷ 8 = 14
? ÷ 3 = 18	? × 17 = 51	? ÷ 7 = 14
3 × ? = 84	19 × ? = 57	6 × ? = 84
? ÷ 3 = 29	? × 16 = 48	? × 5 = 70
3 × ? = 81	9 × ? = 81	? ÷ 9 = 20
? ÷ 3 = 26	? × 7 = 63	? ÷ 9 = 30

191. Written Exercises.

Find quotients and prove:

1. $856,206 \div 96$ **3.** $590,604 \div 223$ **5.** $452,010 \div 85$

2. $481,780 \div 68$ **4.** $\$9,396.14 \div 952$ **6.** $503,074 \div 126$

FRACTIONS

192. Oral Exercises.

1. Give answers:

$\frac{3}{4}$ of 48	$\frac{4}{5}$ of 40	$\frac{5}{6}$ of 54	$\frac{6}{7}$ of 56	$\frac{7}{10}$ of 70
$\frac{5}{7}$ of 70	$\frac{7}{8}$ of 48	$\frac{2}{3}$ of 81	$\frac{1}{3}$ of 48	$\frac{3}{8}$ of 72

2. Find:

$\frac{1}{4}$ of 80	$\frac{3}{5}$ of 45	$\frac{1}{2}$ of 62	$\frac{3}{4}$ of 36	$\frac{1}{10}$ of 100
$\frac{5}{7}$ of 21	$\frac{5}{6}$ of 60	$\frac{5}{7}$ of 49	$\frac{3}{5}$ of 20	$\frac{6}{7}$ of 14

3. Reduce to ninths: $\frac{1}{3}$, $\frac{2}{3}$, $\frac{3}{3}$.

4. Reduce to fourteenths: $\frac{1}{2}$, $\frac{1}{7}$, $\frac{3}{7}$, $\frac{5}{7}$, $\frac{6}{7}$, $\frac{7}{7}$.

5. Reduce to fifteenths: $\frac{1}{3}$, $\frac{2}{3}$, $\frac{1}{5}$, $\frac{3}{5}$, $\frac{4}{5}$, $\frac{5}{5}$.

6. Reduce to sixteenths: $\frac{1}{2}$, $\frac{2}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{1}{8}$, $\frac{3}{8}$, $\frac{5}{8}$, $\frac{7}{8}$, $\frac{8}{8}$.

7. Reduce to eighteenths: $\frac{1}{2}$, $\frac{1}{3}$, $\frac{2}{3}$, $\frac{3}{3}$, $\frac{1}{6}$, $\frac{5}{6}$.

8. Change to mixed numbers:

$\frac{24}{5}$	$\frac{17}{6}$	$\frac{24}{7}$	$\frac{19}{12}$	$\frac{20}{11}$	$\frac{16}{9}$
$\frac{21}{8}$	$\frac{17}{5}$	$\frac{19}{6}$	$\frac{23}{7}$	$\frac{21}{12}$	$\frac{23}{11}$

193. Written Exercises.

Add:

1. $53\frac{2}{7}$	2. $91\frac{5}{14}$	3. $12\frac{5}{24}$	4. $15\frac{6}{25}$
$31\frac{3}{14}$	$11\frac{5}{28}$	$10\frac{1}{48}$	$17\frac{11}{50}$

5. $25\frac{3}{10}$
   $27\frac{1}{2}$
   $16\frac{2}{3}$

6. $24\frac{3}{4}$
   $19\frac{5}{8}$
   $17\frac{7}{10}$

7. $57\frac{1}{2}$
   $14\frac{1}{6}$
   $11\frac{1}{18}$

8. $49\frac{3}{44}$
   $19\frac{7}{22}$
   $32\frac{9}{11}$

9. $51\frac{2}{3}$
   $24\frac{4}{15}$
   $25\frac{3}{8}$

10. $16\frac{3}{10}$
    $49\frac{3}{8}$
    $301\frac{11}{20}$

11. $28\frac{1}{21}$
    $50\frac{4}{7}$
    $22\frac{3}{14}$

12. $35\frac{11}{18}$
    $90\frac{5}{6}$
    $18\frac{7}{9}$

Find remainders:

13. $64\frac{4}{8} - 21\frac{2}{3}$

14. $91\frac{9}{10} - 56\frac{2}{8}$

15. $44\frac{3}{14} - 12\frac{2}{7}$

16. $78\frac{3}{10} - 51\frac{7}{30}$

17. $18\frac{1}{18} - 12\frac{1}{6}$

18. $58\frac{5}{7} - 15\frac{11}{14}$

19. $24\frac{11}{21} - 16\frac{3}{7}$

20. $48\frac{15}{24} - 19\frac{1}{8}$

21. $47\frac{7}{20} - 25\frac{5}{10}$

22. $31\frac{14}{15} - 18\frac{3}{8}$

23. $18\frac{19}{22} - 9\frac{5}{11}$

24. $46\frac{3}{7} - 17\frac{5}{14}$

194. Oral Problems.

1. Find the cost of $1\frac{1}{3}$ gal. of molasses at $.60 per gallon.

2. How many seats are there in 14 rows, if there are 20 seats in a row?

3. What must a farmer pay for 4 packages of chick feed at $.24 per package?

4. The sum of two numbers is 95. One of the numbers is 46. What is the other number?

5. The area of a room is 121 sq. ft. Its length is 11 ft. What is its breadth?

6. If 14 grapefruit cost $1.40, what will 7 cost?

7. What is the cost of 6 lb. of potted tongue at $.14 per pound?

8. The minuend is 74. The difference is 35. What is the subtrahend?

9. A peddler bought 12 boxes of berries for $.50. He sold them at a gain of $.22. How much did he charge per box?

10. If 3 boys can build a boat in 17 days, how long will it take 1 boy to build it, at the same rate?

195. Written Problems.

1. Mr. Brown paid 56 men $2.50 a day for 125 days. How much did he pay them?

2. John can go $12\frac{1}{2}$ miles an hour on his bicycle. His father's horse can trot $9\frac{7}{8}$ miles an hour. How much farther can John go in an hour on his bicycle than his father's horse can trot in that time?

3. After a dealer had sold $15\frac{2}{3}$ yd. of cloth, he had $14\frac{5}{8}$ yd. left. How much did he have at first?

4. Ted Smart's automobile can go 10 miles on a gallon of gasoline. At $.20 per gallon, how much will it cost him to run 250 miles?

5. I walked $5\frac{1}{2}$ miles on Monday, $6\frac{1}{8}$ miles on Tuesday, and $4\frac{7}{12}$ miles on Wednesday. How many miles did I walk in the three days?

6. There are 640 acres in a square mile. How many acres are there in $7\frac{1}{2}$ square miles?

7. How many cows, at $30 each, must I give for 6 horses at $200 each?

8. The earth goes round the sun at the rate of 19 miles a second. How far does it go in an hour?

9. A room is 15 ft. long and 10 ft. wide. · How much will it cost to place a strip of molding around the room at 9 cents per foot?

10. A workman can make a toy cannon in 9 minutes. How many can he make in 54 working hours?

SIXTEENTH WEEK

READING AND WRITING NUMBERS

196. Exercises.

1. Read: CMXLV DXXIV DCCXXXI CCCIX
CCCVII CMXI CDLVI DLII DCXXVI CDXLIII

2. Write in Roman numbers: 313, 401, 290, 137, 642,
757, 699, 586, 958.

SUBTRACTION

197. Oral Exercises.

1. Give answers:

40 − 29	41 − 27	50 − 18	55 − 26
94 − 67	76 − 51	79 − 44	96 − 52
65 − 39	85 − 68	63 − 34	37 − 19

2. Subtract:

50 − 32	60 − 29	46 − 17	89 − 65
74 − 49	56 − 38	52 − 35	90 − 33
36 − 18	45 − 29	78 − 59	67 − 49

198. Written Exercises.

1. 932,912
      −745,284

2. 969,347
      −   489

3. What is the remainder, if the minuend is eight thousand nine hundred fifty dollars and seventy-two cents, and the subtrahend is one thousand eight hundred sixty-six dollars and fifty-seven cents?

4. Name and supply the missing term:

$$\begin{array}{r} ? \\ - \ 6,488 \\ \hline 1,999 \end{array}$$

5. Find the missing term: $1,537 + ? = 2,426$.

6.	$8,950.72	**7.**	1,000,000
	$- \ 1,866.57$		$- \ \ 244,444$

8. If the minuend is nine hundred thousand nine and the subtrahend is ninety-nine thousand nine hundred ninety-nine, what is the remainder?

MULTIPLICATION

199. Oral Exercises.

1. Find products:

6×16	3×29
6×15	3×26
6×13	12×11
6×14	11×11
7×13	11×10
7×14	4×18
10×12	9×7

2. Review the multiplication tables of fives, nines, and twelves.

200. Written Exercises.

Find products:

1. 764×809
2. 486×508
3. $\$29.32 \times 297$
4. 836×500

5. $\$339.33 \times 18$
6. 362×209
7. 953×807
8. $\$494.67 \times 196$

DIVISION

201. Oral Exercises.

1. Supply the missing factors and multiples:

$? \div 4 = 19$	$? \div 13 = 5$	$? \div 5 = 19$
$? \times 7 = 84$	$5 \times \ ? = 90$	$? \div 5 = 17$
$? \div 4 = 27$	$? \div 15 = 5$	$? \div 7 = 14$
$? \times 5 = 95$	$16 \times \ ? = 80$	$6 \times \ ? = 84$

2. Give two factors of the following: 78, 91, 87, 68, 110, 116, 140, 104, 93, 117, 130, 141.

202. Written Exercises.

Find quotients and prove:

1. $984{,}290 \div 76$
2. $754{,}695 \div 24{,}345$
3. $383{,}259 \div 436$

4. $167{,}136 \div 5{,}223$
5. $406{,}684 \div 635$
6. $\$2{,}772.63 \div 567$

FRACTIONS

203. Oral Exercises.

1. Give answers:

$\frac{11}{12}$ of 24	$\frac{1}{11}$ of 110	$\frac{8}{9}$ of 90	$\frac{5}{8}$ of 32	$\frac{1}{8}$ of 96
$\frac{7}{12}$ of 36	$\frac{6}{11}$ of 99	$\frac{7}{9}$ of 81	$\frac{3}{8}$ of 48	$\frac{5}{12}$ of 12

2. Find:

$\frac{1}{8}$ of 72	$\frac{1}{12}$ of 108	$\frac{4}{11}$ of 110	$\frac{4}{6}$ of 54	$\frac{5}{6}$ of 12
$\frac{1}{4}$ of 60	$\frac{1}{6}$ of 90	$\frac{4}{5}$ of 30	$\frac{2}{3}$ of 36	$\frac{10}{11}$ of 110

3. Reduce to eighteenths: $\frac{1}{3}$, $\frac{2}{3}$, $\frac{4}{6}$, $\frac{5}{6}$, $\frac{7}{9}$, $\frac{8}{9}$, $\frac{8}{9}$.

4. Reduce to twentieths: $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{3}{4}$, $\frac{2}{5}$, $\frac{3}{5}$, $\frac{4}{5}$, $\frac{5}{5}$, $\frac{1}{10}$, $\frac{3}{10}$, $\frac{9}{10}$, $\frac{18}{10}$.

5. Reduce to thirtieths: $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{5}$, $\frac{1}{6}$, $\frac{1}{10}$, $\frac{1}{15}$, $\frac{2}{3}$, $\frac{4}{5}$, $\frac{5}{6}$, $\frac{9}{10}$, $\frac{15}{15}$.

6. Reduce to twenty-seconds: $\frac{1}{2}$, $\frac{2}{2}$, $\frac{1}{11}$, $\frac{5}{11}$, $\frac{8}{11}$, $\frac{9}{11}$, $\frac{11}{11}$.

7. Change to mixed numbers: $\frac{15}{8}$, $\frac{28}{9}$, $\frac{19}{11}$, $\frac{16}{7}$, $\frac{20}{6}$, $\frac{18}{5}$, $\frac{23}{5}$, $\frac{21}{6}$, $\frac{19}{7}$, $\frac{20}{12}$, $\frac{24}{11}$, $\frac{19}{9}$.

204. Written Exercises.

Add:

1. $71\frac{1}{7}$
   $16\frac{1}{14}$

2. $63\frac{5}{17}$
   $14\frac{9}{34}$

3. $19\frac{4}{15}$
   $21\frac{2}{45}$

4. $64\frac{5}{12}$
   $72\frac{5}{36}$

5. $64\frac{4}{5}$
   $18\frac{3}{4}$
   $21\frac{9}{10}$

6. $24\frac{19}{20}$
   $35\frac{4}{5}$
   $42\frac{7}{10}$

7. $99\frac{7}{10}$
   $18\frac{2}{3}$
   $36\frac{1}{2}$

8. $5\frac{7}{15}$
   $90\frac{4}{5}$
   $6\frac{2}{3}$

9. $14\frac{7}{9}$
   $32\frac{13}{18}$
   $16\frac{1}{2}$
   $10\frac{2}{3}$

10. $55\frac{1}{6}$
    $70\frac{2}{3}$
    $16\frac{1}{2}$
    $28\frac{5}{18}$

11. $11\frac{15}{16}$
    $14\frac{7}{8}$
    $4\frac{3}{4}$
    $3\frac{1}{2}$

12. $21\frac{4}{5}$
    $32\frac{9}{10}$
    $15\frac{11}{20}$
    $10\frac{3}{4}$

Find remainders:

13. $59\frac{5}{18} - 33\frac{5}{9}$ 17. $46\frac{7}{10} - 33\frac{4}{5}$ 21. $78\frac{8}{21} - 51\frac{4}{7}$

14. $35\frac{9}{20} - 12\frac{7}{10}$ 18. $54\frac{5}{14} - 32\frac{3}{7}$ 22. $29\frac{7}{15} - 15\frac{4}{5}$

15. $34\frac{9}{22} - 22\frac{9}{11}$ 19. $95\frac{5}{14} - 62\frac{5}{7}$ 23. $67\frac{1}{10} - 24\frac{7}{30}$

16. $60\frac{9}{14} - 41\frac{4}{7}$ 20. $26\frac{3}{8} - 14\frac{11}{24}$ 24. $56\frac{4}{11} - 23\frac{15}{33}$

MEASUREMENT

205. Oral Exercises.
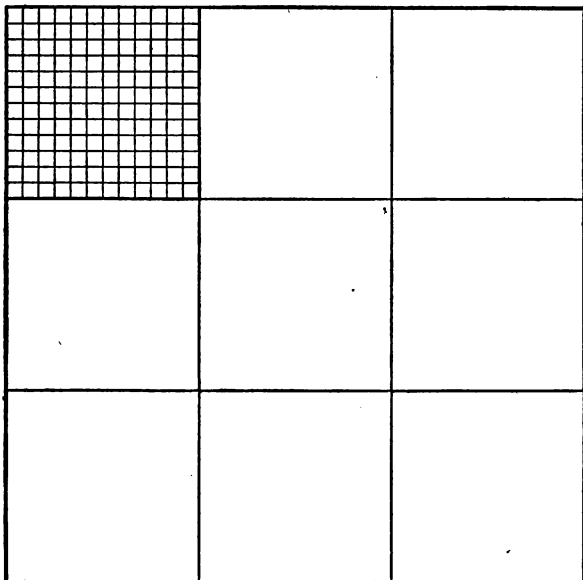
1. On the blackboard draw a full-size square yard. Divide it into foot squares.

Divide one of these foot squares into inches.

Each side of the square yard on the blackboard will be 12 times as long as the sides of the figure on page 145.

2. How many square inches are there in a square foot?

3. How many square feet in a square yard?

4. How many square feet in 12 sq. yd.?

5. The ceiling of a room contains 99 sq. ft. How many square yards does it contain?

6. How many square yards are there in a garden which contains 108 sq. ft.?

206. Written Exercises.

1. How many square inches are there in one square yard?

2. A rectangle is 18 ft. long and 6 ft. wide. How many square feet does it contain? How many square yards?

3. How many square yards of oilcloth are needed to cover a kitchen floor containing 288 sq. ft.?

---

144 square inches (sq. in.) = 1 square foot (sq. ft.)
9 square feet = 1 square yard (sq. yd.)

To find the area of a rectangle, *multiply the number of inches, feet, or yards in its length by the number of inches, feet, or yards in its breadth.*

207. Oral Problems.

1. What is the cost of $2\frac{1}{2}$ yd. of ribbon at $.18 per yard?

2. One week Sam rode 71 miles on his bicycle. The next week he rode 72 miles. How many miles did he ride in the two weeks?

3. How many pounds are there in 64 ounces?

4. The area of a rectangle is 96 sq. in. Its length is 12 in. What is its breadth?

5. How many yards of wire netting are needed to inclose a plot of ground 60 yd. long and 50 yd. wide?

6. I bought 2 lb. of pure barley sugar at $.47 per pound. How much did I pay?

7. A man wished to drive 84 miles in his automobile. His car broke down at the end of 55 miles. How many miles farther did he have to go?

8. If $\frac{1}{4}$ lb. of mustard cost $.15, what will 1 lb. cost?

9. On Saturday I read 59 pages of a story and on Sunday I read 57 pages. How many pages did I read in the two days?

10. A grocer had 72 bags of salt and sold $\frac{1}{8}$ of them at 8 cents per bag. How much did he receive for them?

208. Written Problems.

1. Mrs. Smith bought a dozen tins of fine flour for $3.75. Mrs. Brown bought a dozen tins one at a time, paying $.35 each. How much less did Mrs. Smith pay than Mrs. Brown?

2. A can of milk containing 40 qt. cost $1.60. How much is gained by selling the milk for $.07 a quart?

3. A farmer's wife bought 6 yd. of table linen at $.65 a yard and 12 yd. of flannel at $.42 a yard. How much did both cost her?

4. A grocer had in stock at the beginning of the week 354⅝ lb. of butter. During the week he sold 241½ lb. How much did he have left at the end of the week?

5. What will 71 bu. of oats cost, at the rate of $18 for 30 bu.?

6. A man had three rolls of wire. The first contained 14½ yd., the second 15¼ yd., and the third 21⁷⁄₁₂ yd. How many yards of wire were there in the 3 rolls?

7. From a barrel containing 64⁵⁄₁₂ qt., 25½ qt. were sold. How many quarts were left?

8. A dealer sold 15 overcoats at $18.50 each. The overcoats had cost him $225. How much did he gain?

9. From a piece of land containing 76⁷⁄₁₂ acres, 35¼ acres were sold. How many acres were left?

10. A club spent $108.75 for shirts, trunks, and running shoes for its track team of 29 boys. The shirts and trunks cost $29 in all. How much did each pair of running shoes cost?

SUPPLEMENTARY EXAMPLES

NOTE TO THE TEACHER. — If the examples found in the preceding pages are not sufficient, the supplementary examples may be worked by the pupils whenever the teacher deems it advisable.

I. Addition.

1.	2.	3.
98,136	41,047	75,769
26,953	73,500	63,467
684	67,587	85,932
46,917	58,963	68,075
5,085	95,340	64,334
84,826	87,277	53,757
78,837	48,314	46,836
57,388	70,599	80,085
64,823	46,353	76,348

4. Add : Five hundred ninety-nine dollars and seventy-one cents,

Nine hundred eighteen dollars and fifty-eight cents,

Nine hundred forty-three dollars and ninety cents,

Six hundred nine dollars and seven cents,

Eight hundred sixty-five dollars and thirty-nine cents,

Four hundred sixty-eight dollars and ninety-one cents,
Seven hundred dollars and seventy-five cents,
Eight hundred seventy-two dollars and fifty-nine cents,
Six hundred fifty-three dollars and sixty-seven cents.

5. 89,237	**6.** $765.49	**7.** 59,890
78,816	520.37	9,084
53,594	882.34	80,576
80,926	672.91	39,394
65,753	637.45	78,578
24,209	482.09	89,769
56,340	688.20	7,075
82,235	957.48	78,654
38,049	845.97	58,007

8. Add: Seven hundred twenty-eight dollars and thirty-five cents,

Four dollars and seven cents,

Six hundred seventy-five dollars and twenty-six cents,

Nine hundred eighteen dollars and fifty-four cents,

Eight hundred ninety-three dollars and eighty-five cents,

Seven hundred ninety-two dollars and sixty-two cents,

Three hundred seventy-five dollars and eighty-six cents,

Six hundred eighty dollars and three cents,

Five hundred forty-six dollars and seventy-eight cents.

9. $656.51	10. 77,676	11. $288.77
629.92	83,993	654.46
892.29	46,408	973.70
760.54	65,948	879.15
302.79	90,476	810.09
590.86	99,356	723.46
964.80	79,277	378.04
796.48	50,006	706.76
930.09	84,237	943.87

12. Add : Ninety thousand eighty-nine,
    Ninety-four thousand three hundred twenty-six,
    Eighty-five thousand three hundred fifty,
    Seventy-two thousand two hundred seven,
    Fifty-eight thousand three hundred thirty-eight,
    Ninety-nine thousand four hundred sixty-eight,
    Seventy-four thousand three hundred eighty-
        seven,
    Fifty-three thousand nine hundred seventy-six,
    Fifty-four thousand nine hundred ninety-three.

13. $964.69	14. 78	15. $ 97.94
82.27	75,986	624.31
568.06	50,895	959.76
729.36	7,297	607.09
874.29	34,978	528.97
639.74	48,600	9.79
658.37	83,739	953.08
604.18	59,349	452.86
590.03	90,007	539.83

16. Add : Eighty-three thousand eight hundred sixty-five,

Seventy-one thousand four hundred thirty-nine,

Nine thousand six hundred eighteen,

Eight hundred fifty-seven,

Ninety-one thousand five hundred two,

Ninety-eight thousand eighty-six,

Seventy-eight thousand six hundred fifty-four,

Fifty-six thousand four hundred seventy-five,

Fifty-seven thousand six hundred twenty-nine.

II. Subtraction.

1. 148,452		**2.** $37.56	
33,233		5.64	

3. From one hundred eighty-seven thousand two hundred fifty-three subtract one hundred fifty-eight thousand one hundred thirty-nine.

4. 290,735	**5.** 256,849
156,402	178,417

6. If the minuend is three hundred eighty-one thousand seven hundred ninety-six and the subtrahend is three hundred fifty-two thousand nine hundred seventy-two, what is the remainder?

7. 584,968	**8.** 500,672
392,573	323,465

9. What is the remainder if the subtrahend is four hundred thirty-seven thousand four hundred eighty-five and the minuend is six hundred seventy-nine thousand three hundred fifty-two?

10. 864,496
      375,824

11. 934,853
      657,268

12. From eight hundred ninety-one thousand five hundred forty-five, subtract two hundred twenty-four thousand seven hundred eighty-six.

13. 985,445
      126,778

14. 963,447
      174,658

Name and supply the missing term:

15.   ?
      − 5,347
      ─────
       2,291

16.   6,238
      −   ?
      ─────
       1,923

17.   7,086
      − 4,153
      ─────
         ?

18.   ?
      − 5,483
      ─────
       2,879

19.   8,327
      −   ?
      ─────
       3,673

20.   9,437
      −   ?
      ─────
       2,853

Name and supply the missing term:

21.   9,164
      − 7,314
      ─────
         ?

22.   8,456
      − 7,684
      ─────
         ?

23.   9,800
      − 6,311
      ─────
         ?

24.   ?
      − 5,762
      ─────
       1,975

25.   8,741
      −   ?
      ─────
       6,257

26.   9,337
      −   ?
      ─────
       4,518

27.	?	28.	?	29.	6,092
	− 6,968		− 5,870		− 4,157
	4,379		3,989		?

30.	?	31.	8,356	32.	8,700
	− 6,973		− ?		− 5,439
	4,788		5,999		?

33.	?	34.	9,007	35.	6,415
	− 7,369		− 5,261		− ?
	3,989		?		3,527

36.	8,245	37.	3,988	38.	?
	− 1,968		− ?		− 3,999
	?		2,499		1,999

39.	7,352	40.	?	41.	8,564
	− ?		− 4,769		− ?
	1,684		3,875		2,678

42.	?	43.	5,677	44.	9,000
	− 3,684		− ?		− ?
	2,998		1,898		2,555

III. Multiplication.

1. 869 × 608
2. 968 × 700
3. 186 × 500
4. 524 × 250
5. 7,654 × 50
6. $164.53 × 24
7. 428 × 250
8. 879 × 600

9. $438.67 × 25

10. 462 × 500

11. $357.19 × 15

12. $412.75 × 19

13. 785 × 706

14. 977 × 600

15. 738 × 70

16. 493 × 900

17. 1,421 × 400

18. $8.47 × 508

19. $7.54 × 803

20. $9.48 × 708

21. $8.91 × 604

22. $6.98 × 805

23. $278.26 × 21

24. 964 × 500

25. 672 × 250

26. 549 × 90

27. 499 × 500

28. 657 × 608

29. 1,468 × 507

30. $9.35 × 607

IV. Division.

1. 915,343 ÷ 11

2. 674,539 ÷ 532

3. 246,347 ÷ 212

4. 401,869 ÷ 73

5. $4,470.55 ÷ 463

6. 490,382 ÷ 14,423

7. 264,995 ÷ 742

8. 98,976 ÷ 4,124

9. 708,632 ÷ 9

10. 36,737 ÷ 225

11. 621,600 ÷ 224

12. 143,892 ÷ 3,426

13. 298,508 ÷ 21,322

14. $3,992.88 ÷ 524

15. $4,099.30 ÷ 645

16. 969,036 ÷ 42,132

V. Addition of Fractions.

1.	$10\frac{1}{2}$	2.	$18\frac{2}{3}$	3.	$8\frac{2}{3}$	4.	$14\frac{3}{4}$
	$3\frac{1}{4}$		$11\frac{1}{3}$		$7\frac{2}{3}$		$16\frac{3}{4}$
	$7\frac{3}{4}$		$\frac{1}{3}$		$12\frac{2}{3}$		$9\frac{3}{4}$
	$5\frac{1}{2}$		$5\frac{2}{3}$		$11\frac{1}{3}$		$10\frac{1}{4}$

5.	$14\frac{1}{3}$	6.	$2\frac{1}{4}$	7.	$6\frac{1}{2}$	8.	$2\frac{1}{4}$
	$5\frac{2}{3}$		$7\frac{3}{4}$		$3\frac{3}{4}$		$4\frac{1}{4}$
	$3\frac{2}{3}$		$9\frac{3}{4}$		$5\frac{1}{2}$		$3\frac{1}{4}$
	$7\frac{1}{3}$		$6\frac{1}{4}$		$9\frac{3}{4}$		$8\frac{1}{2}$

9.	$5\frac{1}{2}$	10.	$6\frac{1}{6}$	11.	$5\frac{5}{8}$	12.	$2\frac{1}{3}$
	$3\frac{1}{8}$		$4\frac{1}{2}$		$9\frac{1}{2}$		$2\frac{1}{2}$
	$2\frac{5}{8}$		$3\frac{5}{8}$		$10\frac{5}{8}$		$1\frac{1}{6}$
	$5\frac{1}{8}$		$4\frac{5}{8}$		$4\frac{5}{8}$		$1\frac{1}{12}$

13.	$3\frac{1}{3}$	14.	$5\frac{1}{2}$	15.	$14\frac{3}{8}$	16.	$25\frac{7}{8}$
	$3\frac{1}{2}$		$6\frac{1}{4}$		$11\frac{1}{2}$		$20\frac{1}{2}$
	$4\frac{2}{3}$		$3\frac{1}{8}$		$12\frac{3}{4}$		$24\frac{3}{4}$
	$2\frac{1}{6}$		$2\frac{3}{4}$		$8\frac{1}{8}$		$5\frac{1}{4}$

17.	$25\frac{1}{2}$	18.	$23\frac{3}{10}$	19.	$35\frac{4}{5}$	20.	$21\frac{1}{2}$
	$22\frac{2}{5}$		$11\frac{4}{5}$		$7\frac{7}{10}$		$28\frac{4}{5}$
	$19\frac{1}{10}$		$12\frac{1}{2}$		$5\frac{1}{2}$		$36\frac{9}{10}$

21.	$7\frac{1}{4}$	22.	$11\frac{1}{2}$	23.	$21\frac{2}{3}$	24.	$12\frac{5}{12}$
	$21\frac{1}{2}$		$12\frac{3}{4}$		$22\frac{3}{4}$		$2\frac{3}{4}$
	$5\frac{1}{3}$		$10\frac{1}{3}$		$5\frac{1}{2}$		$7\frac{1}{2}$
	$18\frac{1}{12}$		$9\frac{1}{12}$		$7\frac{1}{12}$		$10\frac{1}{3}$

25.	$3\frac{2}{3}$	26.	$29\frac{1}{5}$	27.	$8\frac{2}{3}$	28.	$14\frac{1}{3}$
	$17\frac{11}{12}$		$8\frac{1}{10}$		$3\frac{1}{4}$		$15\frac{1}{9}$
	$1\frac{1}{2}$		$21\frac{1}{15}$		$2\frac{5}{6}$		$27\frac{1}{18}$
	$3\frac{5}{6}$		$1\frac{1}{30}$		$9\frac{5}{12}$		$5\frac{1}{2}$

29. $15\frac{8}{7}$
$26\frac{3}{14}$
$\underline{\ 7\frac{3}{28}}$

30. $19\frac{4}{5}$
$15\frac{3}{10}$
$\underline{\ 6\frac{2}{15}}$

31. $31\frac{1}{2}$
$25\frac{1}{4}$
$\underline{31\frac{1}{8}}$

32. $9\frac{3}{5}$
$25\frac{1}{4}$
$\underline{14\frac{9}{10}}$

33. $24\frac{5}{6}$
$23\frac{7}{18}$
$14\frac{2}{3}$
$\underline{15\frac{1}{6}}$

34. $5\frac{4}{5}$
$9\frac{7}{10}$
$3\frac{1}{15}$
$\underline{16\frac{17}{30}}$

35. $22\frac{1}{6}$
$12\frac{2}{3}$
$4\frac{8}{9}$
$\underline{6\frac{5}{18}}$

36. $21\frac{3}{4}$
$15\frac{4}{5}$
$5\frac{1}{10}$
$\underline{2\frac{1}{20}}$

37. $6\frac{2}{3}$
$5\frac{4}{5}$
$17\frac{7}{15}$
$\underline{9\frac{9}{10}}$

38. $2\frac{7}{9}$
$3\frac{5}{6}$
$1\frac{2}{3}$
$\underline{5\frac{11}{18}}$

39. $16\frac{7}{20}$
$4\frac{3}{4}$
$6\frac{4}{5}$
$\underline{3\frac{9}{10}}$

40. $5\frac{5}{11}$
$7\frac{3}{22}$
$6\frac{3}{44}$
$\underline{18\frac{1}{2}}$

41. $7\frac{1}{2}$
$4\frac{3}{4}$
$2\frac{7}{8}$
$\underline{1\frac{11}{16}}$

42. $28\frac{1}{4}$
$7\frac{9}{22}$
$14\frac{3}{11}$
$\underline{19\frac{1}{2}}$

43. $15\frac{3}{10}$
$17\frac{3}{4}$
$6\frac{4}{5}$
$\underline{7\frac{19}{20}}$

44. $9\frac{17}{18}$
$16\frac{2}{3}$
$4\frac{5}{9}$
$\underline{12\frac{1}{2}}$

45. $14\frac{5}{14}$
$31\frac{4}{7}$
$10\frac{4}{21}$
$\underline{3\frac{1}{42}}$

46. $6\frac{3}{4}$
$5\frac{19}{20}$
$2\frac{4}{5}$
$\underline{12\frac{9}{10}}$

47. $5\frac{1}{2}$
$2\frac{3}{4}$
$25\frac{7}{8}$
$\underline{4\frac{15}{16}}$

48. $4\frac{17}{18}$
$3\frac{8}{9}$
$6\frac{1}{2}$
$\underline{4\frac{2}{3}}$

49. $3\frac{10}{11}$
$1\frac{19}{22}$
$4\frac{17}{44}$
$\underline{2\frac{1}{4}}$

50. $12\frac{8}{5}$
$2\frac{2}{3}$
$7\frac{17}{18}$
$\underline{5\frac{1}{2}}$

51. $18\frac{1}{3}$
$22\frac{1}{3}$
$10\frac{7}{9}$
$\underline{5\frac{5}{18}}$

52. $16\frac{4}{5}$
$7\frac{3}{10}$
$9\frac{2}{15}$
$\underline{4\frac{7}{20}}$

VI. Subtraction of Fractions.

1. $25\frac{3}{4}$
   $\underline{16\frac{1}{2}}$

2. $33\frac{3}{4}$
   $\underline{19\frac{1}{4}}$

3. $63\frac{2}{3}$
   $\underline{18\frac{1}{3}}$

4. $19\frac{1}{3}$
   $\underline{14\frac{2}{3}}$

5. $15\frac{1}{2}$
   $\underline{6\frac{1}{4}}$

6. $38\frac{1}{8}$
   $\underline{19\frac{1}{3}}$

7. $43\frac{5}{6}$
   $\underline{15\frac{1}{3}}$

8. $50\frac{2}{3}$
   $\underline{25\frac{1}{6}}$

9. $42\frac{1}{6}$
   $\underline{29\frac{1}{8}}$

10. $33\frac{1}{2}$
    $\underline{15\frac{1}{6}}$

11. $34\frac{1}{4}$
    $\underline{15\frac{1}{8}}$

12. $37\frac{1}{2}$
    $\underline{28\frac{3}{8}}$

13. $41\frac{3}{8}$
    $\underline{22\frac{1}{4}}$

14. $52\frac{7}{8}$
    $\underline{16\frac{3}{4}}$

15. $55\frac{7}{10}$
    $\underline{26\frac{1}{2}}$

16. $63\frac{9}{10}$
    $\underline{29\frac{4}{5}}$

17. $33\frac{1}{5}$
    $\underline{29\frac{1}{10}}$

18. $20\frac{9}{10}$
    $\underline{11\frac{1}{2}}$

19. $31\frac{2}{5}$
    $\underline{28\frac{9}{10}}$

20. $45\frac{1}{2}$
    $\underline{16\frac{3}{10}}$

21. $10\frac{11}{12}$
    $\underline{5\frac{1}{2}}$

22. $21\frac{7}{12}$
    $\underline{6\frac{1}{4}}$

23. $35\frac{5}{12}$
    $\underline{14\frac{1}{3}}$

24. $43\frac{1}{6}$
    $\underline{14\frac{1}{12}}$

25. $37\frac{5}{6}$
    $\underline{18\frac{2}{3}}$

26. $58\frac{2}{3}$
    $\underline{29\frac{7}{12}}$

27. $51\frac{11}{12}$
    $\underline{16\frac{1}{3}}$

28. $24\frac{3}{4}$
    $\underline{8\frac{5}{12}}$

29. $39\frac{1}{2}$
    $\underline{16\frac{3}{4}}$

30. $52\frac{1}{6}$
    $\underline{31\frac{2}{3}}$

31. $27\frac{3}{10}$
    $\underline{15\frac{4}{5}}$

32. $34\frac{5}{12}$
    $\underline{11\frac{5}{6}}$

33. $34\frac{1}{3}$
    $\underline{15\frac{5}{12}}$

34. $34\frac{3}{8}$
    $\underline{12\frac{3}{4}}$

35. 52
    $\underline{16\frac{7}{12}}$

36. $42\frac{11}{14}$
    $\underline{16\frac{3}{7}}$

37. $25\frac{5}{7}$
    $10\frac{3}{14}$

38. $43\frac{5}{16}$
    $22\frac{7}{8}$

39. $53\frac{1}{12}$
    $21\frac{5}{6}$

40. $15\frac{2}{7}$
    $10\frac{3}{14}$

41. $19\frac{7}{18}$
    $4\frac{1}{2}$

42. $51\frac{17}{20}$
    $20\frac{9}{10}$

43. $44\frac{7}{16}$
    $22\frac{1}{2}$

44. $35\frac{11}{20}$
    $8\frac{3}{4}$

45. $29\frac{1}{2}$
    $15\frac{5}{18}$

46. $57\frac{2}{3}$
    $12\frac{9}{10}$

47. $29\frac{2}{7}$
    $12\frac{9}{14}$

48. $35\frac{8}{21}$
    $14\frac{4}{7}$

49. $28\frac{15}{22}$
    $4\frac{10}{11}$

50. $6\frac{17}{24}$
    $2\frac{7}{8}$

51. $27\frac{1}{3}$
    $15\frac{5}{27}$

52. $64\frac{7}{15}$
    $21\frac{4}{45}$

TABLES OF MEASURES

TABLE OF TIME

60 seconds (sec.)	= 1 minute (min.)
60 minutes	= 1 hour (hr.)
24 hours	= 1 day (da.)
7 days	= 1 week (wk.)
365 days	= 1 common year (yr.)
366 days	= 1 leap year
12 months (mo.)	= 1 year

Thirty days hath September,
April, June, and November.
All the rest have thirty-one,
Except the second month alone,
To which we twenty-eight assign
Till leap year gives it twenty-nine.

TABLE OF LENGTH

12 inches (in.)	= 1 foot (ft.)
3 feet	= 1 yard (yd.)
5½ yards	= 1 rod (rd.)
16½ feet	= 1 rod
320 rods	= 1 mile (mi.)
1,760 yards	= 1 mile
5,280 feet	= 1 mile

TABLE OF LIQUID MEASURE

4 gills (gi.)	= 1 pint (pt.)
2 pints	= 1 quart (qt.)
4 quarts	= 1 gallon (gal.)

TABLE OF WEIGHT

16 ounces (oz.)	= 1 pound (lb.)
2,000 pounds	= 1 ton (T.)

TABLE OF DRY MEASURE

2 pints (pt.)	= 1 quart (qt.)
8 quarts	= 1 peck (pk.)
4 pecks	= 1 bushel (bu.)

MULTIPLICATION TABLES

2 × 1 = 2	3 × 1 = 3	4 × 1 = 4	5 × 1 = 5
2 × 2 = 4	3 × 2 = 6	4 × 2 = 8	5 × 2 = 10
2 × 3 = 6	3 × 3 = 9	4 × 3 = 12	5 × 3 = 15
2 × 4 = 8	3 × 4 = 12	4 × 4 = 16	5 × 4 = 20
2 × 5 = 10	3 × 5 = 15	4 × 5 = 20	5 × 5 = 25
2 × 6 = 12	3 × 6 = 18	4 × 6 = 24	5 × 6 = 30
2 × 7 = 14	3 × 7 = 21	4 × 7 = 28	5 × 7 = 35
2 × 8 = 16	3 × 8 = 24	4 × 8 = 32	5 × 8 = 40
2 × 9 = 18	3 × 9 = 27	4 × 9 = 36	5 × 9 = 45
2 × 10 = 20	3 × 10 = 30	4 × 10 = 40	5 × 10 = 50
2 × 11 = 22	3 × 11 = 33	4 × 11 = 44	5 × 11 = 55
2 × 12 = 24	3 × 12 = 36	4 × 12 = 48	5 × 12 = 60

6 × 1 = 6	7 × 1 = 7	8 × 1 = 8	9 × 1 = 9
6 × 2 = 12	7 × 2 = 14	8 × 2 = 16	9 × 2 = 18
6 × 3 = 18	7 × 3 = 21	8 × 3 = 24	9 × 3 = 27
6 × 4 = 24	7 × 4 = 28	8 × 4 = 32	9 × 4 = 36
6 × 5 = 30	7 × 5 = 35	8 × 5 = 40	9 × 5 = 45
6 × 6 = 36	7 × 6 = 42	8 × 6 = 48	9 × 6 = 54
6 × 7 = 42	7 × 7 = 49	8 × 7 = 56	9 × 7 = 63
6 × 8 = 48	7 × 8 = 56	8 × 8 = 64	9 × 8 = 72
6 × 9 = 54	7 × 9 = 63	8 × 9 = 72	9 × 9 = 81
6 × 10 = 60	7 × 10 = 70	8 × 10 = 80	9 × 10 = 90
6 × 11 = 66	7 × 11 = 77	8 × 11 = 88	9 × 11 = 99
6 × 12 = 72	7 × 12 = 84	8 × 12 = 96	9 × 12 = 108

10 × 1 = 10	11 × 1 = 11	12 × 1 = 12
10 × 2 = 20	11 × 2 = 22	12 × 2 = 24
10 × 3 = 30	11 × 3 = 33	12 × 3 = 36
10 × 4 = 40	11 × 4 = 44	12 × 4 = 48
10 × 5 = 50	11 × 5 = 55	12 × 5 = 60
10 × 6 = 60	11 × 6 = 66	12 × 6 = 72
10 × 7 = 70	11 × 7 = 77	12 × 7 = 84
10 × 8 = 80	11 × 8 = 88	12 × 8 = 96
10 × 9 = 90	11 × 9 = 99	12 × 9 = 108
10 × 10 = 100	11 × 10 = 110	12 × 10 = 120
10 × 11 = 110	11 × 11 = 121	12 × 11 = 132
10 × 12 = 120	11 × 12 = 132	12 × 12 = 144